

**ADDRESS**

EECS Dept., 1301 Beal Ave.  
University of Michigan  
Ann Arbor, MI 48109-2122

(734) 763-1434  
fessler@umich.edu  
<http://web.eecs.umich.edu/~fessler>

**EDUCATION**

9/86-8/90	Ph.D.	Electrical Engineering	Stanford University
9/87-6/89	M.S.	Statistics	Stanford University
9/85-8/86	M.S.	Electrical Engineering	Stanford University
8/82-5/85	B.S.	Electrical Engineering	Purdue (Highest Distinction)

**ACADEMIC APPOINTMENTS** (all at the University of Michigan)

07/06-08/08	Assoc. Chair, ECE Division, Dept. of Electrical Engineering and Computer Science
09/04-present	Professor, Dept. of Electrical Engineering and Computer Science, Dept. of Biomedical Engineering, Dept. of Radiology
09/98-08/04	Assoc. Prof., Dept. of Electrical Engineering and Computer Science, Dept. of Biomedical Engineering, Dept. of Radiology
09/95-08/98	Assistant Professor, Dept. of Electrical Engineering and Computer Science
10/97-08/99	Assistant Professor, Division of Nuclear Medicine
05/93-04/98	Assistant Professor, Dept. of Biomedical Engineering
04/93-08/95	Assistant Professor / Assistant Res. Sci., Div. of Nuclear Medicine
09/90-09/93	Post-doctoral fellow, Division of Nuclear Medicine

**DISSERTATION**

9/86-8/90      Object-based 3-D reconstruction of arterial trees from limited projections  
Adviser: Prof. Albert Macovski, Information Systems Lab, Stanford University

**AFFILIATIONS**

2017-present	Michigan Center for Applied and Interdisciplinary Mathematics (MCAIM)
2016-present	Michigan Institute for Data Science (MIDAS)
2015-present	Michigan Institute for Computational Discovery and Engineering (MICDE)
2010-present	UM Applied Physics program
2010-present	UM Cancer Center / Molecular imaging research program
2006-present	Fellow, IEEE
2002-present	IEEE Nuclear and Plasma Sciences Society (NPSS)
2003,9-present	ISMRM: International Society for Magnetic Resonance in Medicine
2002-present	IEEE Engineering in Medicine & Biology Society
2001	SPIE: International Society for Optical Engineering
1998-present	IEEE Engineering in Medicine and Biology Society (EMBS)
1991-2003	American Statistical Association
1990-present	SIAM: Society for Industrial and Applied Mathematics
1983-present	IEEE: Institute of Electrical and Electronics Engineers
1983-present	IEEE Signal Processing Society (SPS)

**HONORS**

2023	Steven Attwood Award (College of Engineering award)
2022	IEEE Signal Processing Society: Outstanding Editorial Board Member Award
2022	UM Eta Kappa Nu (HKN) ECE Professor of the Year Award
2016	William L. Root Collegiate Professor of EECS
2016	IEEE EMBS Technical Achievement Award
2016	UM Eta Kappa Nu (HKN) ECE Professor of the Year Award
2015	UM Distinguished Faculty Achievement Award
2013	IEEE Edward J. Hoffman Medical Imaging Scientist Award
2013	UM College of Engineering David E. Liddle Research Excellence Award
2012	UM Rackham Distinguished Graduate Mentor Award
2006	IEEE Fellow, for contributions to theory and practice of image reconstruction
2005	UM College of Engineering Education Excellence Award
2003	UM EECS Department Outstanding Achievement Award
2002-5	AIMBE Fellow (American Institute for Medical and Biological Engineering)
2000	UM Eta Kappa Nu (HKN) EECS Professor of the Year Award
2000	UM Henry Russel Award (university level award for scholarship and teaching)
1998	IEEE Signal Processing Society 1998 Best Paper Award: “Exploring estimator bias-variance tradeoffs using the uniform CR bound,” AO Hero, JA Fessler, M Usman, IEEE Tr. Sig. Proc. 44(8):2026-41, Aug. 1996
1998	UM Biomedical Engineering Department Teaching Excellence Award
1994	Journal of Nuclear Medicine, Outstanding Manuscript Award (Human Studies) “In vivo mapping of cholinergic neurons in the human brain using SPECT and IBVM,” D. E. Kuhl et al., 35(3):405-10, Mar. 1994.
1993	Francois Erbsmann Investigator Award, Info. Proc. in Medical Imaging (IPMI) Conf.
1992	Young Investigators Program Finalist, Computer and Instrumentation Council of the Society of Nuclear Medicine
1991-1992	Dept. of Energy Alexander Hollaender Distinguished Postdoctoral Fellowship
1990-1991	National Institutes of Health National Cancer Institute Postdoctoral Training Fellowship
1985-1988	National Science Foundation Graduate Fellowship
1985	Purdue University Outstanding Senior Engineer Award
1982	Purdue University President’s Honors Award and Scholarship
1983-5	Eta Kappa Nu, Phi Kappa Phi, Phi Eta Sigma

**HONORS FOR GROUP MEMBERS**

2022	Zongyu Li Editor’s choice for Med. Phys. paper on DblurDoseNet
2020	ISMRM <i>Magna Cum Laude</i> Merit Award to Steven Whitaker with Gopal Nataraj & Jon-Fredrik Nielsen
2020	ISMRM <i>Magna Cum Laude</i> Merit Award to Shouchang Guo with Doug Noll
2020	ISMRM Data Sampling & Image Reconstruction Workshop, 2nd-place poster award to Melissa Haskell (with Amos Cao and Doug Noll)
2018	ISMRM Machine Learning Workshop, 2nd-place poster award to Gopal Nataraj with Mingjie Gao and Jon-Fredrik Nielsen

- 2018 ISMRM *Summa Cum Laude* Merit Award to Anish Lahiri  
with Luis Hernandez
- 2018 Best student paper award, ISBI; Zhipeng Li et al.:  
“Image-domain material decomposition using data-driven sparsity models for dual-energy CT”
- 2017 AAPM Young Investigators Symposium Winner; Lianli Liu:  
Accelerated diffusion-weighted imaging in support of higher-order diffusion analysis
- 2015 ISMRM *Magna Cum Laude* Merit Award for abstract by Sydney N Williams  
with Hao Sun, Jon-Fredrik Nielsen, Doug Noll
- 2015 Top 10% award for ICIP paper  
“An optimized first-order method for image restoration” by Donghwan Kim
- 2014 Two *summa cum laude* and three *magna cum laude* ISMRM Merit Awards  
for abstracts by Hao Sun, Dan Weller, and Feng Zhao, with Jon Nielsen and Doug Noll
- 2013 ISMRM *Magna Cum Laude* Merit Award for Feng Zhao’s abstract:  
“Balanced SSFP-like imaging with simultaneous water-fat separation and band reduction using  
small-tip fast recovery”
- 2013 ISMRM *Magna Cum Laude* Merit Award for Hao Sun’s abstract with J. F. Nielsen  
and D. C. Noll: “Strategies for improved small-tip fast recovery (STFR) imaging”
- 2012 ISMRM *Magna Cum Laude* Merit Award for Michael Allison’s abstract:  
“Accelerated computation of regularized field map estimates”
- 2010 Prize for New Advances in CT & 3D Imaging, Chinese Society of Stereology,  
for separable footprint method with Yong Long and James Balter
- 2009 10th Intl. Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear  
Medicine, Poster Award, for “A 3D forward and back-projection method for  
X-ray CT using separable footprint” by Yong Long, J A Fessler and J M Balter.
- 2007 Cum laude poster award for “A simplified motion model for estimating respiratory  
motion from orbiting views” by Rongping Zeng, J A Fessler, James M Balter, at SPIE Medical  
Imaging Conference. Co-authored posters with students Ram Narayanan and Yingying Zhang  
also received honorable mention poster awards.

### INTERNSHIPS

- 5/85-9/85 General Electric Corporate Research & Development Laboratory  
Knowledge Based Systems Branch: Schenectady, New York  
Developed rule-based expert system and signal conditioning algorithms for analyzing sonar  
signals generated by ocean multipath autocorrelation.
- 5/84-8/84 Hughes Aircraft Company  
Sensor Systems Division: El Segundo, California  
Analyzed visible and infrared satellite sensor imaging systems. Computer modeling of solar  
cell degradation from cosmic radiation.

### UNDERGRADUATE RESEARCH

- 1/85-5/85 Research Project at Purdue University (with Prof. S. Bass)  
Analysis of digitized musical sound signals for electronic music synthesis.
- 9/84-12/84 Senior Project at Purdue University (with Prof. H. J. Siegel and J. Kuehn)  
Algorithms for vectorization of satellite river images with parallel computing.

**SOFTWARE**

VSPLINE	A library for non-parametric smoothing with vector splines. Source code in C available through NETLIB.
ASPIRE	A sparse iterative reconstruction library. Compiled program available on web. Over 330 registered users internationally.
NUFFT	Matlab toolbox for nonuniform fast Fourier transform
MIRT	Michigan image reconstruction toolbox, in Matlab and Julia

**PATENTS**

- |            |  |
|------------|--|
| 2019-04-02 | 13. U.S. Patent 10247801. 2019-04-02<br>Hao Sun, J F Nielsen, D C Noll, J A Fessler<br>Method of MRI imaging using a spectrally designed pulse   |
| 2017-08-01 | 12. U.S. Patent 9721361. 2017-08-01<br>Evgeny Drapkin, Jean-Baptiste Thibault, Debashish Pal, Somesh Srivastava Ryan Thome,<br>Madison McGaffin, J A Fessler, Donghwan Kim<br>Systems and methods for parallel processing of imaging information ( <i>Duality/BSS</i> )            |
| 2016-11-29 | 11. U.S. Patent 9508163. 2016-11-29<br>Zhou Yu, Bruno De Man, Jean-Baptiste Thibault, Debashish Pal, Lin Fu, Charles A. Bouman,<br>J A Fessler, Hung Nien<br>Accelerated iterative reconstruction ( <i>AL-OS</i> )   |
| 2016-11-08 | 10. U.S. Patent 9489752. 2016-11-08<br>Donghwan Kim, Sathish Ramani, J A Fessler, Lin Fu, Bruno De Man<br>Ordered subsets with momentum for X-ray CT image reconstruction  |
| 2016-08-02 | 9. U.S. Patent 9406154. 2016-08-02<br>Lin Fu, Madison G. McGaffin, Zhou Yu, Jean-Baptiste Thibault, Sathish Ramani, J A Fessler,<br>Bruno K. B. De Man, Dabashish Pal<br>Iterative reconstruction in image formation ( <i>channelized preconditioners</i> )                        |
| 2015-02-17 | 8. U.S. Patent 8958660. 2015-02-17<br>Debashish Pal, Donghwan Kim, Janghwan Cho, J A Fessler, Jean-Baptiste Thibault, Zhou Yu,<br>Somesh Srivastava, Lin Fu, Bruno Kristiaan Bernard De Man<br>Method and apparatus for iterative reconstruction ( <i>Nonuniform OS</i> )          |
| 2014-12-16 | 7. U.S. Patent 8913805. 2014-12-16<br>Yong Long, J A Fessler, James M Balter<br>Three-dimensional forward and back-projection methods ( <i>separable footprint</i> )   |
| 2014-11-11 | 6. U.S. Patent 8885975. 2014-11-11<br>Zhou Yu, Bruno Kristiaan Bernard De Man, Jean-Baptiste Thibault, Debashish Pal, Lin Fu,<br>Charles Bouman, Ken Sauer, Sathish Ramani, J A Fessler and Somesh Srivastava<br>Method and apparatus for iterative reconstruction ( <i>ADMM</i> ) |
| 2013-09-17 | 5. U.S. Patent 8538099. 2013-09-17<br>J A Fessler and Jiang Hsieh<br>Method and system for controlling image reconstruction ( <i>adaptive parameters</i> )   |

- 2012-07-31 4. U.S. Patent 8233682. 2012-07-31  
J A Fessler, Charles A. Bouman, Jiang Hsieh, Jean-Baptiste D. M. Thibault, Ken D. Sauer, Samit K. Basu, Bruno K. B. De Man  
Methods and systems for improving spatial and temporal resolution of computed images of moving objects
- 2011-02-08 3. U.S. Patent 7885371. 2011-02-08  
Jean-Baptiste Thibault, Charles A Bouman, J A Fessler, Ken D Sauer  
Method and system for image reconstruction (*hybrid, e.g., OS/ICD*)
- 2004-06-22 2. U.S. Patent 6754298. 2004-06-22  
J A Fessler  
Method for statistically reconstructing images from a plurality of transmission measurements having energy diversity and image reconstructor apparatus utilizing the method.
- 2003-01-14 1. U.S. Patent 6507633. 2003-01-14  
Idris Elbakri, J A Fessler  
Method for statistically reconstructing a polyenergetic X-ray computed tomography image and image reconstructor apparatus utilizing the method.

#### INVENTION DISCLOSURES / PATENT APPLICATIONS

- 2024-04-18 (Disclosure) J A Fessler, J F Nielsen, Yun Jiang, Jiayao Yang  
Calibration-free multidimensional universal refocusing pulse design for 3D reduced field-of-view prostate imaging
- 2024-02-23 (Provisional patent application) Guanhua Wang, D C Noll, J A Fessler  
Adaptive sampling for linear sensing systems
- 2021-12-06 (Patent application) Haowei Xiang, D C Noll, J A Fessler  
Model-based reconstruction for looping-star pulse sequences in MRI
- 2023-01-27 (Patent application) Guanhua Wang, D C Noll, J A Fessler  
Systems and methods for accelerated magnetic resonance imaging (MRI) reconstruction
- 2020-09-14 (Provisional patent application) Theodore Norris, Zhengyu Huang, J A Fessler, Zhaohui Zhong  
Focal stack camera as secure imaging device and image manipulation detection method
- 2016-01-27 (Disclosure) Madison McGaffin, J A Fessler  
Accelerated and distributed iterative coordinate descent for model-based X-ray CT reconstruction
- 2017-02-10 (Patent application) Theodore B. Norris, Zhaohui Zhong, J A Fessler, You-Chia Chang, Che-Hung Liu Miao-bin Lien  
Light-field imaging with transparent photodetectors
- 2016-10-28 (PCT patent application) Hitinder S. Gurm, Rajesh R. Nadakuditi, J A Fessler, Brian Moore, Saiprasad Ravishankar  
Method of dynamic radiographic imaging using singular value decomposition
- 2014-04-16 (Disclosure) Matthew Muckley, J A Fessler, D C Noll  
Majorization method for fast parallel MR image reconstruction
- 2013-07-03 (Disclosure) Hung Nien, J A Fessler  
Tomographic image reconstruction using linearized augmented Lagrangian method

2012-10-03	(Disclosure) J A Fessler Method and system for image reconstruction using multiple compute nodes
2012-4-25	(Disclosure) Sathish Ramani, J A Fessler Splitting-based algorithms for X-ray CT reconstruction
2011-6	(Provisional patent application) Zhong He, Christopher G. Wahl, J A Fessler, Jason Jaworski Isotope-imaging integrated deconvolution
2008-1	(Disclosure) J A Fessler, Somesh Srivastava, Jean-Baptiste Thibault Motion artifact reduction in iterative reconstruction for X-ray CT imaging
2008-1	(Disclosure) C Yip, D C Noll, J A Fessler Spectral-spatial pulse design for signal recovery in T2*-weighted functional MRI
2007-12	(Disclosure) W Grissom, J A Fessler, D C Noll Fast algorithm for optimal control parallel excitation RF pulse design in MRI
2004-9-13	(Disclosure) J A Fessler, S. Lee, V. Olafsson, H. Shi and D. Noll Fast image reconstruction in magnetic resonance imaging with compensation for off-resonance and relaxation effects.
1994	(Disclosure) N H Clinthorne, J A Fessler Direct measurement of PET attenuation correction factors using an X-ray transmission source and current-integration mode radiation detector

### **SERVICE**

#### **EDITORIAL POSITIONS**

9/2023-1/2024	Deputy Associate Editor, IEEE Transactions on Computational Imaging
5/2020-5/2025	Senior Associate Editor, IEEE Transactions on Computational Imaging
1/2019-12/2024	Associate Editor, SIAM J. on Imaging Sciences
2017-2018	Associate Editor, IEEE Transactions Medical Imaging Special issue on Machine Learning for Image Reconstruction
11/2014-12/2018	Associate Editor, IEEE Transactions on Computational Imaging
1/2012-10/2014	Associate Editor, IEEE Transactions Image Processing
3/1997-5/2011	Associate Editor, IEEE Transactions Medical Imaging
1/2000-2/2002	Associate Editor, IEEE Signal Processing Letters
7/1996-8/1999	Associate Editor, IEEE Transactions Image Processing

#### **ACADEMIC SERVICE: UNIVERSITY**

5/2022-8/2023	OVRP faculty advisory group on research data, Member
9/2021-8/2024	Faculty grievance panel, external member
9/2021-5/2022	CRLT Faculty Advisory Board
9/2020-8/2022	Provost's Faculty Advisory Committee, Member
5/2020-6/2024	Medicine BRCF Microscopy Core, Advisory Board Member
5/2015-1/2016	CoE Dean Search Advisory Committee, Chair
1/2014-6/2016	Rackham Mentoring Awards Selection Committee, Member
7/2012-6/2015	Rackham Executive Board, Elected Member
9/2013-8/2014	CRLT-Faculty special interest group: Instructional technology

**ACADEMIC SERVICE: COLLEGE OF ENGINEERING**

3/2018-6/2018 CoE Research Review Panel, Member  
 9/2017-8/2020 CoE Executive Committee, Elected Member  
 9/2012-5/2014 CRLT-Engin Faculty Advisory Board, Member  
 12/2009-5/2010 Member, Inter-Pro Internal Review Committee  
 8/2009-12/2009 Co-Chair, Imaging Institute Committee for NCRC  
 9/2004-8/2006 Chair, CoE Curriculum Committee  
 9/2002-5/2004 CoE Curriculum Committee, ECE rep.  
 9/2000-5/2001 CoE Curriculum Committee, EECS rep.

**ACADEMIC SERVICE: DEPARTMENT**

9/2023-8/2024 ECE Faculty Search Committee, Chair  
 9/2023-8/2024 Signal Processing Area Chair  
 9/2021-8/2022 Signal Processing Area Chair  
 9/2020-8/2022 ECE Executive Committee, Elected Member  
 9/2020-8/2022 ECE External Honors and Awards Committee  
 9/2021-8/2022 ECE Graduate Advising  
 9/2017-8/2020 ECE Graduate Advising  
 9/2015-5/2016 ECE Graduate Admissions Committee, Member  
 9/2014-5/2015 Chair, ECE Graduate Program Merge Committee  
 9/2013-8/2014 ECE Faculty Search Committee  
 9/2013-8/2016 Signal Processing Area Chair  
 9/2010-5/2016 ECE Graduate Academics Committee, Member  
 9/2009-5/2014 ECE Graduate Student Recruiting: Outreach Coordinator  
 9/2011-8/2013 ECE Executive Committee, Elected Member  
 9/2010-5/2013 ECE Graduate Admissions Committee, Member  
 8/2009-5/2012 ECE Graduate Affairs Committee, Member  
 7/2006-8/2008 Assoc. Chair, ECE Division of EECS  
 1/2008-4/2008 Co-Chair, Joint EECS/CPAT Search Committee  
 9/2004-5/2006 CE Program Committee, Member  
 9/2003-5/2004 Chair, CE Program Committee  
 9/2002-5/2004 Chair, EECS Curriculum Committee  
 3/2001-5/2001 EE/Systems organization committee, Member  
 9/2000-5/2001 Chair, EE Curriculum Committee  
 11/2000-5/2001 CE UG Degree Program Committee, Member  
 9/1999-5/2000 EE Curriculum Committee, Member  
 8/1997-5/2000 Biomedical Engineering Advising (Medical Imaging Track)  
 2/1996-8/1999 EECS Systems Graduate Admissions, Member  
 2/1996-8/1999 EECS Systems Graduate Education Committee, Member  
 1993-8/2000 Biomedical Engineering Graduate Education Committee, Member

**SCIENTIFIC SERVICE**

Professional Society

2023	Member, SIAM Activity Group on Imaging Science Best Paper Prize
2023	Member, IEEE SPS Fellow Evaluation Committee
2020-	Advisory Member, IEEE Computational Imaging Technical Committee
2014-	Member, Scientific Advisory Board, IEEE Trans. Medical Imaging
2015-2019	Member, IEEE Computational Imaging Special Interest Group
2012-14	Member, IEEE NPSS Fellow Evaluation Committee
5/1/2011-4/30/14	Member, IEEE Marie Curie Technical Field Award committee
2009-2010	Chair and Treasurer, Steering Committee, IEEE Trans. Medical Imaging
2007-present	Technical Committee on Biomedical Imaging and Image Processing (BIIP), IEEE Engineering and Medicine in Biology Society, member
1/1/2007-12/31/10	Steering Committee (SPS Representative), IEEE Trans. Medical Imaging
10/2004-10/2005	IEEE Nuclear and Plasma Sciences Society Chair of Awards Committee of NMISC
1/2004-12/2006	IEEE Nuclear and Plasma Sciences Society: Nuclear Medical and Imaging Sciences Council (NMISC): Elected member
7/2004-12/2006	IEEE Signal Processing Society: Technical Committee on Bio-Imaging and Signal Processing (BISP): member
	<u>Conference Planning</u>
2022	ISBI Awards Committee Member
2018-9	IEEE SPS TC Liason for ISBI
2018	Special session on Smart Imaging at ISBI 2018 Co-organizer
2012:2:2022	International meeting on image formation in X-ray CT Program committee
2012	IEEE Statistical Signal Processing Workshop (SSP) Finance chair
2009-2010	IEEE Intl. Symposium on Biomedical Imaging (ISBI) Chair, Steering Committee
2007	IEEE Intl. Symposium on Biomedical Imaging (ISBI) General chair
2/2006-2/2008	SPIE Medical Imaging Conference, Physics of Medical Imaging Program Committee
2003-8,2017-19	IEEE Intl. Symposium on Biomedical Imaging (ISBI) Steering committee, program committee
7/2002	First IEEE Intl. Symp. on Biomedical Imaging (ISBI), Technical Program Co-Chair
2/2002-5	SPIE Medical Imaging Conference, Image Processing Program Committee
2001-23	Fully 3D Image Reconstruction Meeting, Scientific Committee
2001-05	Information Processing in Medical Imaging (IPMI), Scientific Committee
7/1997	SPIE Image Reconstruction and Restoration, <i>Conference Co-chair</i> and session chair
1995	IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing (ICASSP), session chair
1994,6,7,8,2002	IEEE Nuclear Science Symp. and Medical Imaging Conf. (NSS/MIC), session chair
1993-2016	IEEE Nuclear Science Symp. and Med. Imag. Conf. (NSS/MIC), program committee
	<u>Conference Reviews</u>
2021	ICCV Workshop Learning for Computational Imaging Program committee
2019	ICCV workshop on Learning for Computational Imaging
2019	Signal processing with adaptive sparse structured representations (SPARS)



2016 Intl. Soc. Magnetic Resonance in Med. Conf. (ISMRM)  
 2002-2022 ISBI reviewer and/or Associate Editor  
 2012,16 IEEE Statistical Signal Processing Workshop (SSP)  
 2011 IEEE workshop on Image, Video, and Multidimensional Signal Processing (IVMSP)  
 2009 ISMRM workshop on data sampling and image reconstruction  
 2008 IEEE EMBS conference (EMBC)  
 2004-6,15-18,23 IEEE international conf. on acoustics, speech, and signal processing (ICASSP)  
 1995,7,2000-7,9- IEEE international conference on image processing (ICIP)  
 1995 IEEE international symposium on information theory (ISIT)

#### Advisory Boards

2023-present External advisory board, MSU NSF National Research Training (NRT) grant  
 “AI and Data enabled Predictive Multiscale Modeling across STEM” (AIDMM)  
 2020-2022 ISMRM fastMRI reconstruction challenge committee  
 2015-05-present External advisor, United Kingdom collaborative computational project (CCP)  
 in synergistic PET-MR image reconstruction  
 2008-2012 Scientific Advisory Board member for UCSF NIH P41:  
 “Research Resource for MRI of Neurodegenerative Diseases”

#### Proposal Reviews

2023-10-31 Banff International Research Station: proposal review  
 2023-08-26 Belgium Fund for Scientific Research: proposal review  
 2023-07-12 NIH NIBIB p41 review panel  
 2021-06-17 NIH ITD study section  
 2020-07-24 NIH K/R13 study section  
 2020-06-18 NIH ITD study section  
 2020-05-17 UM MICDE proposal review  
 2020-04 Israel National Science Foundation, proposal review  
 2020-03-25 UM MICDE pre-proposal review  
 2019-03-29 NIH study section: R13/K review  
 2018-06-07 NIH NIBIB p41 review panel  
 2019-01-04 Villum Foundation: proposal review  
 2017-08-19 Belgium Fund for Scientific Research: proposal review  
 2016-12-06 NIH study section: R13 review  
 2015-06-24 NIH study section: NIBIB Quantum Program (U01)  
 2014-10-06 NIH study section: Medical Imaging (MEDI)  
 2014-07-02 NIH study section: Mentored Career Development Award (K) applications  
 2013-10-07 NIH study section: Biomedical Imaging Technology - A  
 2013-06-07 NIH study section: Biomedical Imaging Technology - A  
 2013-02 NIH proposal review for Biomedical Imaging Technology - A  
 2012-10-04 NIH study section: Biomedical Imaging Technology - A  
 2012-06-24 Swiss National Science Foundation proposal review  
 2012-05-15 NIH SBIR Phase II Cancer Therapeutics Development: proposal reviews  
 2012-01-21 Swiss National Science Foundation proposal review  
 2011-12 NASA Postdoctoral Program review  
 2011-10-14 Reviewed proposal for Netherlands Organisation for Scientific Research (NWO)  
 2011-10-03 NIH study section: Biomedical Imaging Technology - A  
 2011-06-28 Swiss National Science Foundation proposal review

2011-04 NASA Postdoctoral Program review  
 2011-01-28 Michigan African Presidential Scholar proposal review  
 2011-02-07 NIH study section: In Vivo Imaging and Bioengineering Research, R21/R01 props.  
 2010-07-26 UM OVPR Faculty Grant review  
 2010-06-21 NIH study section: In Vivo Imaging and Bioengineering Research, R21 proposals  
 2010-02-13 NIH study section: Academic Industrial Partnership R01 proposals  
 2009-11 NASA Postdoctoral Program review  
 2009-06-22 NIH study section: In Vivo Imaging and Bioengineering Research, R21 proposals  
 2009-03-02 NIH study section: In Vivo Imaging and Bioengineering Research, R21 proposals  
 2008-03 NIH/NCI R13 review panel, conference proposals  
 2007-11-14 NIH/NIBIB panel, training and career development proposals  
 2006 Israel National Science Foundation, proposal review  
 2006 UM Cancer Center Cancer Research Committee, proposal review  
 2005 Natural Sciences and Engineering Research Council of Canada, proposal review  
 2004 Indiana 21st Century Research and Technology Fund, proposal review  
 2003-05-16 US/Israel Binational Science Foundation proposal review  
 2002-03-25 NSF Panel Review (SBIR) (8 proposals), biomedical engineering program  
 2001-06-28 NIH/NCI SBIR study section (6 proposals)  
 2001-03-03 NSF proposal review, applied mathematics program  
 2000-06-26 NIH Study Section, reviewer for shared instrumentation proposals  
 1998-04-22 DOE SBIR, proposal review  
 1997-11-10 NIH Study Section, reviewer for shared instrumentation proposals  
 1996-11-22 NIH/NCI study section, k01 proposal review  
 1993 National Science Foundation, proposal review

#### Thesis Reviews

2019-04-12 Examiner of dissertation of Camille Chapdelaine for Sciences et Technologies de l'Information et de la Communication Dept., Université Paris-Saclay, France  
 1999-08-04 Examiner of dissertation of Sakari Alenius for Department of Information Technology in Tampere Univ. of Technology, Finland

#### Book Reviews

2023-06 Review of SIAM book proposal  
 2011-06 Review of Wiley book proposal on image registration  
 2008-11 Review of Cambridge book proposal on statistics in bioimaging  
 2008-11 Review of SIAM book proposal on image registration  
 2008-01 Review of Springer book proposal on MR  
 2000-04-27 Wiley textbook review: Signals and Systems, by Simon Haykin and Barry Van Veen  
 1998-12 Wiley Press, textbook review (Johnson and Wise)  
 1998-07 Wiley Press, review of book chapter for Encyclopedia of EE  
 1995 Cambridge University Press, book review

#### Journal Reviews

*(The year listed is the 1st year I reviewed for that journal.)*

2021 J. of Machine Learning Research  
 2021 IEEE Open Journal of Signal Processing  
 2021 Int. J. of High Performance Computing Appl.  
 2020 PNAS

2018 NMR in Biomedicine  
2017 Inverse Problems in Imaging  
2016 IEEE Transactions on Computational Imaging  
2015 Advanced in Computational Mathematics  
2014 SIAM J. Imaging Science  
2013 Optics Express  
2012 SIAM J. Scientific Computing  
2011 Physica Medica: European Journal of Medical Physics  
2010 SIAM J. Applied Mathematics  
2009 Sensors  
2009 Computerized Medical Imaging and Graphics  
2008 J. of Magnetic Resonance  
2008 IMA Journal of Numerical Analysis  
2008 Mathematics and Computers in Simulation  
2008 Foundations and Trends in Signal Processing  
2007 ACM Trans. on Mathematical Software  
2006 Circuits, Systems and Signal Processing  
2008 Magnetic Resonance in Medicine  
2005 Computers & Geosciences  
2005 Journal of Integral Equations and Applications  
2004 J. Computational Physics  
2003 SIAM Review  
2002 Journal of Computational and Applied Mathematics  
2002 IEEE Proceedings  
2002 International Journal of Imaging Systems and Technology  
2002 Statistics in Medicine  
2001 IEEE Transactions on Pattern Analysis and Machine Intelligence  
2000 J. Math. Im. Vision  
2000 IEE Proceedings - Vision, Image and Signal Processing  
1999 The Astrophysical Journal  
1999 IEEE Transactions on Information Theory  
1999 Medical Physics  
1999 Computer Methods and Programs in Biomedicine  
1998 IEEE Transactions on Biomedical Engineering  
1998 IEEE Transactions on Evolutionary Computation  
1998 Australian & New Zealand Journal of Statistics  
1998 Statistics and Computing  
1998 J. American Statistical Assoc.  
1997 Medical Image Analysis Journal  
1997 Physics in Medicine and Biology  
1996 IEEE Signal Processing Letters  
1996 J. Royal Statistical Society  
1996 IEEE Signal Processing Magazine  
1994 Inverse Problems Journal  
1994 Statistica Sinica  
1994 SIAM Journal Scientific Computing  
1993 IEEE Transactions on Image Processing  
1993 Computer Vision, Graphics, and Im. Proc.; Graphical Models and Image Proc.

1993 SIAM Journal Matrix Analysis and Applications  
1991 Journal of Nuclear Medicine  
1991 IEEE Transactions on Signal Processing  
1990 IEEE Transactions on Medical Imaging

## TEACHING

COURSES - UNIVERSITY OF MICHIGAN

Set of 12 courses taught: ENGN 100, EECS 206, 316, 401, 451, 501, 516, 551, 556, 598, 600, 755

Year	Term	Enrl.	Number	Title
2024	W	??	ENGN 100	Intro to Engin.: Music Signal Processing
2023	F	111	EECS 551	Matrix methods for Signal Processing...
2022	W	79	ENGN 100	Intro to Engin.: Music Signal Processing
2021	F	126	EECS 551	Matrix methods for Signal Processing...
2021	W	51	EECS 556	Image Processing
2020	F	102	EECS 551	Matrix methods for Signal Processing...
2020	W	50	EECS 598	Optim. methods for SIPML
2019	F	86	EECS 551	Matrix methods for Signal Processing...
2019	W	59	EECS 598	Optim. methods for Signal and Image Proc.
2018	F	73	EECS 551	Matrix methods for Signal Processing...
2018	W	31	EECS 556	Image Processing
2017	F	144	EECS 551	Matrix methods for Signal Processing...
2016	W	18	EECS 556	Image Processing
2015	F	22	ENGN 100	Intro to Engin.: Music Signal Processing
2015	W	19	EECS 556	Image Processing
2014	F	59	ENGN 100	Intro to Engin.: Music Signal Processing
2014	W	18	EECS 556	Image Processing
2013	F	22	EECS 755	Adv. Topics Signal Proc.
2013	W	22	EECS 556	Image Processing
2012	F	36	ENGN 100	Intro to Engin.: Music Signal Processing
2012	W	49	EECS 556	Image Processing
2011	F	51	ENGN 100	Intro to Engin.: Music Signal Processing
2011	W	36	EECS 556	Image Processing
2010	F	42	ENGN 100	Intro to Engin.: Music Signal Processing
2010	W	21	EECS 755	Adv. Topics Signal Proc: Image Recon.
2009	F	23	EECS 516	Medical Imaging Systems
2007	F	21	EECS 516	Medical Imaging Systems
2006	F	12	EECS 755	Adv. Topics Signal Proc: Image Recon.
2006	W	69	EECS 206	Signals and Systems I, Section 1
2005	F	31	EECS 516	Medical Imaging Systems
2005	W	36	EECS 556	Image Processing
2004	F	17	EECS 600	Function-Space Methods
2004	W	72	EECS 451	Digital Signal Processing and Analysis
2003	F	31	EECS 755	Adv. Topics Signal Proc: Image Form.
2003	W	160	EECS 206	Signals and Systems I, Sections 1 & 2
2002	F	130	EECS 206	Signals and Systems I (co-taught S1)
2002	F	97	EECS 206	Signals and Systems I (co-taught S2)
2001	W	25	EECS 556	Image Processing
2000	F	12	EECS 600	Function-Space Methods
2000	W	24	EECS 556	Image Processing
1999	F	75	EECS 316	Signals and Systems

1999	W	37	EECS 316	Signals and Systems
1998	F	54	EECS 451	Digital Signal Processing and Analysis
1998	W	65	EECS 451	Digital Signal Processing and Analysis
1997	F	22	EECS 516	Medical Imaging Systems
1997	Spr.	39	EECS 401	Probabilistic Methods in Engineering
1996	F	16	EECS 516	Medical Imaging Systems
1996	W	90	EECS 401	Probabilistic Methods in Engineering
1995	F	72	EECS 501	Probability and Random Processes
1994	Spr.	39	EECS 401	Probabilistic Methods in Engineering

### PLENARY TALKS

2020	Learning-based image reconstruction Physics keynote for RNSA
2015	Iterative image reconstruction in CT and MRI Fully 3D Image Reconstruction Conference, Newport, RI
2008	Mathematical challenges in magnetic resonance imaging (MRI) SIAM Conference on Imaging Science, San Diego, CA
2008	Signal processing in medical image reconstruction European Signal Processing Conference (EUSIPCO), Lausanne, Switzerland
2008	Model-based image reconstruction in MRI Huangguoshu International Interdisciplinary Conference on Biomedical Mathematics, Huangguoshu, China
1999	Fast converging iterative algorithms for PET The VIII symposium on the medical applications of cyclotrons, Turku, Finland

### SHORT COURSES

04/18/23	<i>Computational MRI in the deep learning era: The two facets of acquisition and image reconstruction</i> ISBI 2023 tutorial course with Philippe Ciuciu
07/25/21	Joint optimization of learning-based image reconstruction and k-space trajectories for MRI SIIM-AAPM Joint Symp. on Machine Intelligence in Med. Im.
05/21/21	<i>Basic introduction to machine learning</i> ISMRM course on Machine Learning: Everything You Wanted to Know
07/14/20	<i>Data-driven methods for medical image reconstruction</i> SIAM 2020 Imaging Science tutorial course
10/14/19	<i>Tutorial on Julia programming for computational imaging</i> 2019 IMA Workshop on Computational Imaging
04/08/19	<i>Recent advances in acquisition and reconstruction for compressed sensing MRI</i> ISBI 2019 tutorial course with Philippe Ciuciu
06/16/18	<i>Limitations and caveats of deep learning</i> ISMRM course on deep learning: Everything you want to know
08/30/12	<i>Assessment of image quality for the new CT: Statistical reconstruction methods</i> AAPM Imaging educational course
08/30/12	<i>Limits of dose reduction in CT: Statistical reconstruction methods</i> AAPM Imaging educational course

- 08/02/11 *Image reconstruction methods for CT*  
AAPM Imaging educational course
- 05/08/11 *Reconstruction methods for under-sampled data*  
ISMRM Imaging strategies course
- 02/13/11 *Statistical reconstruction in CT*  
SPIE Medical imaging conference workshop / panel
- 05/14/08 *Iterative methods for image reconstruction*  
Tutorial course at ISBI in Paris.
- 05/04/08 *Tradeoffs and complexities in new reconstruction methods*  
Imaging strategies course / panel discussion at ISMRM Attendance  $\approx$  150
- 05/11/07 *Statistical methods for image reconstruction*  
Short course at JHU for approximately 30 attendees.
- 04/06/06 *Iterative methods for image reconstruction*  
Tutorial course at ISBI. Enrollment: 52
- 11/19/04 *Statistical methods for image reconstruction*  
Short course at IEEE Nuclear Science Symposium and Medical Imaging Conference in Rome.  
Enrollment: 80
- 10/20/03 *Magnetic resonance imaging*  
One component of a short course on *Fundamentals of Medical Imaging* presented at IEEE Nuclear Science Symp. and Medical Imaging Conf. in Portland, OR.
- 11/12/02 *Statistical methods for image reconstruction*  
Short course presented at IEEE Nuclear Science Symposium and Medical Imaging Conference in Norfolk, VA. Enrollment: 42.
- 6/17-20/02 *Statistical methods for image reconstruction*  
Lectures presented at 5th IEEE EMBS International Summer School on Biomedical Imaging, Berder Island, France. Enrollment: 51.
- 11/6/01 *Statistical methods for image reconstruction*  
Short course presented at IEEE Nuclear Science Symposium and Medical Imaging Conference in San Diego, CA. Enrollment: 52.
- 11/10/98 *Statistical methods for image reconstruction and imaging system design*  
Organized and presented short course at IEEE Nuclear Science Symposium and Medical Imaging Conference in Toronto, Canada. Enrollment: 71.
- 11/12/97 *Magnetic resonance imaging*  
One component of a short course on *Fundamentals of Medical Imaging* presented at IEEE Nuclear Science Symp. and Medical Imaging Conf. in Albuquerque, NM.

#### **EXTERNAL SEMINARS**

- 11/06/23 EE Department, Bilkent University  
Joint optimization of learning-based image reconstruction and sampling for MRI
- 04/12/23 ECE Department at the University of Austin  
Joint optimization of learning-based image reconstruction and sampling for MRI
- 04/07/23 KLA Ann Arbor  
Foundations of score-based diffusion models
- 10/21/22 Duke Univ. Center for Virtual Imaging Trials  
Joint optimization of learning-based image reconstruction and sampling for MRI

10/17/22 MSU CMSE  
Joint optimization of learning-based image reconstruction and sampling for MRI

09/16/22 EPFL, Switzerland  
Quantifying exchange in myelin water imaging

09/14/22 UCL, London  
Joint optimization of learning-based image reconstruction and sampling for MRI

04/21/22 EPFL, Switzerland  
Joint optimization of learning-based image reconstruction and k-space trajectories for MRI

06/14/21 Pontificia Universidad Católica del Perú  
Data driven methods for image reconstruction in CT and MRI

11/06/20 Emory Scientific Computing Seminar  
Data driven methods for image reconstruction

07/30/19 FDA  
Image reconstruction using adaptive signal models

10/15/18 ECE, Cornell  
Optimal first-order convex minimization methods

10/05/18 Univ. of Wisconsin  
Medical image reconstruction using adaptive signal models

06/04/18 IMACCS, OSU  
Inverse problem regularization using adaptive signal models

06/01/17 NeuroSpin, Paris, France  
Dynamic MRI image reconstruction using adaptive regularization methods

01/26/17 Univ. of Minnesota, ECE  
Optimal first-order convex minimization methods

01/23/17 NYU Medical Center  
Optimal first-order convex minimization methods

09/22/16 Zhejiang University, Hangzhou, China  
Optimal first-order convex minimization methods

09/20/16 UM-SJTU Joint Institute, Shanghai, China  
Optimal first-order convex minimization methods

09/19/16 UIH, Shanghai  
Accelerating image reconstruction methods

09/12/16 MSU Comp. Math. Sci. and Engin. Colloquium  
Optimal first-order convex minimization methods

08/03/16 Technical University Munich  
Optimal first-order convex minimization methods

03/09/15 Johns Hopkins University, BME Department  
Accelerating image reconstruction for low-dose X-ray CT and MRI

05/03/13 Purdue University: Integrated Imaging Seminar  
Accelerating image reconstruction using variable splitting methods

04/16/13 Ann Arbor Optical Society of America  
Accelerating image recovery using variable splitting methods

03/05/13 Univ. of Southern California  
Accelerating image reconstruction using variable splitting methods

11/09/12 Univ. of Washington Radiology Imaging Sciences Grand Rounds  
Model-based image reconstruction for low-dose X-ray CT



10/05/12 FDA  
Statistical image reconstruction for X-ray CT: Image quality challenges

07/08/11 Universitat Zu Lübeck  
Statistical image reconstruction methods for low-dose X-ray CT

02/24/11 NIBIB  
Innovations required in data reconstruction; NIBIB Summit on Management of Radiation Dose in Computerized Tomography: Toward the Sub-mSv Exam

03/01/10 KLA-Tencor  
Nonrigid image registration that preserves topology

08/31/09 Johns Hopkins University, Radiology Department  
Motion-compensated image reconstruction

05/29/09 Mayo Clinic, BME and Radiology Department  
Motion-compensated image reconstruction

04/16/09 University of Washington, Radiology Department  
Motion-compensated image reconstruction

03/12/09 Northeastern University, EE Department  
Motion-compensated image reconstruction

12/02/08 Illinois Institute of Technology, ECE Department  
Motion compensation in model-based image reconstruction

11/13/08 Ewha University, Seoul, Korea, EE Department  
Iterative methods for image reconstruction

11/11/08 Beijing University, School of Mathematical Sciences  
Motion compensation in model-based image reconstruction

09/18/08 University of Illinois, Urbana, BME Department  
Model-based image reconstruction with motion-compensation

10/11/07 University of Wisconsin, Milwaukee, Physics Department  
Iterative methods for image formation in MRI

10/10/07 GE Health Care Technologies, Milwaukee, WI  
Iterative image reconstruction for X-ray CT

05/10/07 Johns Hopkins University, Radiology Department  
Motion-corrected PET image reconstruction from respiratory gated data

12/14/06 University of Washington Department of Radiology  
Iterative reconstruction for MR imaging

10/04/06 GE Health Care Technologies, Milwaukee, WI  
Iterative reconstruction for X-ray CT imaging

05/25/06 General Electric Global Research Center, Schenectady, NY  
Iterative image reconstruction methods in MRI

03/16/06 ECE Department at Michigan State University, Distinguished Speaker Seminar Series  
Image reconstruction for magnetic resonance imaging: to FFT or not?

03/09/06 University of Chicago, Committee on Medical Physics Seminar Series  
Iterative image reconstruction methods in MRI

01/13/06 Martinos Center for Biomedical Imaging, Mass. Gen. Hosp.  
MR image reconstruction using iterative methods

05/03/05 Life Sciences Division, Lawrence Berkeley National Laboratory  
Fast iterative image reconstruction methods for MRI

04/14/04 Univ. of Virginia  
Image reconstruction in MRI using iterative methods  
Walter N. Munster Invited Lecture Series on Image Analysis

11/13/03 Stanford University  
Iterative methods for image reconstruction in MRI

03/06/03 General Electric Medical Systems, Milwaukee, WI  
Statistical X-ray CT image reconstruction

06/21/02 Nuklearmedizinische Klinik der Technischen Universität München  
Maximum-likelihood tomographic image reconstruction for dual-energy X-ray CT

06/13/01 General Electric Medical Systems, Milwaukee, WI  
Statistical methods for X-ray CT image reconstruction

12/16/00 Hong Kong University, Workshop on Mathematical Methods in Image Processing  
Parallelizable algorithms for image recovery problems

01/07/00 General Electric Corporate Research and Development, Schenectady, NY  
Statistical methods for image reconstruction

05/26/99 Tampere University of Technology, Finland  
Iterative reconstruction methods in emission tomography

04/21/99 Duke University ECE Department  
Fast converging algorithms for robust estimation in inverse problems

03/03/98 University of Pittsburgh  
Robust edge-preserving algorithms for PET image reconstruction

12/19/97 Center for Functional Imaging, Lawrence Berkeley Lab  
Robust edge-preserving algorithms for PET image reconstruction

12/03/97 Washington University, St. Louis  
Robust edge-preserving algorithms for image recovery

05/05/97 University of Washington Statistics Department  
Statistical models for randoms-precorrected PET

03/27/97 Michigan State University  
Statistical methods for image reconstruction in positron emission tomography

09/24/96 University of Arizona Department of Radiology  
Noise and spatial resolution properties of image reconstruction methods

01/05/96 University of Washington Department of Radiology  
Conjugate gradient methods for image reconstruction

08/08/95 Nuklearmedizinische Klinik der Technischen Universität München  
Statistical methods for image reconstruction

06/17/94 Washington University, Midwest Workshop on Iterative Image Reconstruction  
Sequential iterative algorithms for image reconstruction

12/16/93 Brookhaven National Labs  
Penalized-likelihood image reconstruction methods

09/11/92 University of Minnesota, Midwest Workshop on Iterative Image Reconstruction  
Least squares: algebraic or statistical?

05/03/91 University of Chicago, Midwest Workshop on Iterative Image Reconstruction  
Gibbs-penalized reconstruction with imperfect boundary information

12/05/91 Mathematical Sciences Research Inst., Berkeley, CA  
Complete-data space choices for PET reconstruction

**SEMINARS AT UM**

1/18/24	UM CSP seminar Accelerated optimization for dynamic MRI reconstruction with locally low-rank regularizers
09/15/23	MIDAS mini-symposium: Generative AI: Diffusion models Tutorial on score-based generative models with medical imaging applications
05/12/23	fMRI research meeting Self-supervised methods for MR image reconstruction
04/03/23	MIDAS AI Symposium An introduction to score-based generative models
02/22/23	MIDAS AI Bootcamp Machine learning methods for medical image reconstruction and scan design
04/02/21	UM BME 499.060 Medical image formation using machine learning
03/09/20	UM BME 499.060 Medical image formation using machine learning
04/19/19	UM ECE faculty seminar Medical image formation using machine learning
12/12/19	UM CSP seminar Image processing using the Julia language - a tutorial
10/08/18	UM Center for Healthcare Engin. and Patient Safety (CHEPS) Medical imaging inverse problems using optimization and machine learning
03/26/18	UM IEEE Student Branch X-ray vision meets machine learning
03/14/18	UM IOE Department Optimal first-order convex minimization methods for machine learning
12/07/17	UM CSP seminar Optimal first-order convex minimization methods
06/19/17	UM Radiology Dynamic MRI image reconstruction using adaptive regularization methods
04/07/17	UM ECE faculty meeting Taking the engaged learning plunge
10/05/16	UM fMRI engineering group Spectral RF pulse design for MRI
03/31/16	UM CSP seminar Inverse problem regularization using sparsity models
03/09/16	UM Michigan Research Community Inverse problems, medical imaging, and career thoughts
10/30/15	EECS 500 seminar Model-based image reconstruction using optimization methods
07/01/15	UM fMRI engineering group Density compensation in non-Cartesian MRI
04/23/15	UM CSP seminar Accelerating image reconstruction for low-dose X-ray CT and MRI
10/17/14	EECS 500 seminar Image reconstruction using optimization methods

10/03/14 AIM Seminar  
Optimized first-order minimization methods

04/17/14 UM CSP seminar  
Optimized first-order convex minimization methods

11/22/13 EECS 500 seminar  
Ghosts in the (MRI) machine: Exorcism by signal processing?

05/23/13 UM CSP seminar  
Accelerating image reconstruction using variable splitting methods

10/19/12 EECS 500 seminar  
Model-based image reconstruction for X-ray CT

08/28/12 UM fMRI engineering group  
Quantitative T2 mapping in MRI

10/20/10 UM IEEE Student Branch  
X-ray vision: A signal processing perspective

04/08/10 UM Student SIAM Chapter Seminar  
Diffeomorphic image registration

10/07/09 BME 500 Seminar  
Image Registration: Warping Without Folding

03/27/09 AIM Seminar  
Applied and interdisciplinary math (AIM): Faculty portrait

10/02/08 UM CSPL Seminar  
Motion-compensated image reconstruction

07/17/08 UM Radiology Research Seminar  
Advanced MRI image reconstruction methods

03/25,27/08 UM ENGIN 110 lecture  
Overview of ECE: information and power / digital image compression

01/23/08 UM CEE 682-039, guest lecture  
Inverse problems in magnetic resonance imaging (MRI)

09/28/07 First regional MRI symposium  
Advanced methods for image reconstruction in fMRI

03/21/07 UM Applied Physics Seminar  
Iterative methods for image formation in MRI

09/19/03 UM Applied and Interdisciplinary Math (AIM) Seminar  
Nonuniform fast Fourier transforms and applications in imaging

01/10/00 UM Nuclear Medicine Division.  
Transmission scans: Should the beams overlap?

04/17/99 UM Biomedical Engineering Dept.  
Lecture on Medical Imaging to BME 295

01/14/98 UM IOE Department  
Fast converging algorithms for image recovery

01/05/98 UM Nuclear Medicine Division  
PET measurements: Poisson or not?

10/06/97 UM Biostatistics Department  
Nonparametric analysis of statistic images from functional mapping experiments

03/12/96 UM CSPL Seminar  
Preconditioned conjugate gradient methods for statistical image reconstruction

11/22/95	UM EECS 590 Seminar Statistical methods for image reconstruction in emission tomography
09/30/94	UM Nuclear Medicine Division Image Reconstruction (short course on PET)
02/04/94	UM Statistics Department Space-alternating generalized EM algorithm and applications
11/30/94	UM Bioengineering Program Statistical methods for image reconstruction in nuclear medicine
1994	UM Nuclear Medicine Division Lecture in Positron Emission Tomography course
04/09/92	UM Biostatistics Department Statistical aspects of image reconstruction in positron-emission tomography (PET)
1992	UM Nuclear Medicine Division Lecture in Nuclear Medicine Course for basic scientists

### **PH.D. DISSERTATIONS CHAIRED**

7/8/22	Blocker, Cameron (EECS) <i>Adaptive regularization for inverse problems in imaging</i> Topaz Labs, Deep Learning Researcher
5/3/17	Le, Mai (EECS) <i>Reconstruction methods for free-breathing dynamic contrast-enhanced MRI</i> Apple, Health Sensor Algorithm Engineer
5/19/15	McGaffin, Madison (EECS) <i>X-ray CT image reconstruction on highly-parallel architectures</i> Apple, Computational Photography and Computer Vision Software Engineer
12/16/14	Schmitt, Stephen (EECS) <i>Fast variance prediction for iteratively reconstructed CT with applications to tube current modulation</i> Susquehanna, Quantitative Research Associate
9/21/14	Cho, Jang Hwan (EECS) <i>Improving statistical image reconstruction for cardiac X-ray computed tomography</i> Endra, Image reconstruction engineer
5/19/14	Kim, Dong Hwan (EECS) <i>Accelerated optimization algorithms for statistical 3D X-ray computed tomography image reconstruction</i> KAIST University, Assistant Professor
5/19/14	Nien, Hung (EECS) <i>Model-based X-ray CT image and light field reconstruction using variable splitting methods</i> Apple, Imaging Scientist
3/21/14	Allison, Michael (EECS) <i>Accelerated computation of regularized estimation in magnetic resonance imaging</i> McKinsey & Co., Associate
5/30/13	Matakos, Antonis (EECS) <i>Dynamic image and fieldmap joint estimation methods for MRI using single-shot trajectories</i> Amazon, Software development engineer

- 10/19/11 Lingenfelter, Dan (EECS)  
*Source detection and image reconstruction with position-sensitive gamma-ray detectors*  
Google, Software Engineer
- 05/20/11 Huh, Wonseok (EECS)  
*Regularized statistical material decomposition in medical imaging*  
Bain and company, Consultant
- 04/28/11 Funai, Amanda (EECS)  
*Regularized estimation of main and RF field inhomogeneity and relaxation rate in magnetic resonance imaging*  
East Carolina University, Teaching instructor
- 01/18/11 Khalsa, Kim (BME)  
*Temporal regularization use in dynamic contrast-enhanced MRI*  
University of Michigan, Lecturer
- 05/18/10 Valenzuela, John (Appl. Phys.)  
*Polarimetric image reconstruction algorithms*  
Integrity Applications, Principal Scientist
- 04/28/09 Chun, Se Young (EECS)  
*Motion aspects in joint image reconstruction and nonrigid motion estimation*  
Seoul National University, Assistant Professor
- 08/22/08 Shi, Hugo (EECS)  
*Regularization design for tomographic systems for uniform and isotropic spatial resolution*  
Enthought, Quantitative analyst
- 05/29/08 Ruan, Dan (EECS)  
*Image guided respiratory motion analysis: time series and image registration*  
UCLA Radiation Oncology, Assistant Professor
- 04/25/08 Srivastava, Somesh (EECS)  
*Accelerated statistical image reconstruction algorithms and simplified cost functions for X-ray computed tomography*  
GE Healthcare, Advanced algorithm scientist
- 06/25/07 Zhang, Yingying (EECS)  
*Noise properties of regularized image reconstruction in X-ray computed tomography*  
RGM Advisors, Quantitative researcher
- 05/14/07 Zeng, Rongpeng (EECS)  
*Estimating respiratory motion from CT images via deformable models and priors*  
FDA/CDRH/OSEL, Research scientist
- 01/27/06 Jacobson, Matthew (EECS)  
*Approaches to motion-corrected PET image reconstruction from respiratory gated projection data*  
Johns Hopkins Univ., Research associate
- 08/29/05 Yendiki, Anastasia (EECS)  
*Analysis of signal detectability in statistically reconstructed tomographic images*  
Harvard Medical School, Assistant Professor
- 08/24/04 Ahn, Sangtae (EECS)  
*Convergent algorithms for statistical image reconstruction in emission tomography*  
GE Global Research, Lead Engineer, Functional Imaging Group

- 12/15/03 Kim, Jeongtae (EECS)  
*Intensity based image registration using robust similarity measure and constrained optimization: applications for radiation therapy*  
Ewha University, Associate Professor
- 06/13/03 Elbakri, Idris A (EECS)  
*Statistical reconstruction algorithms for polyenergetic X-ray computed tomography*  
Division of Medical Physics, CancerCare, Imaging physicist
- 04/18/03 Sotthivirat, Saowapak (EECS)  
*Statistical image recovery techniques for optical imaging systems*  
National Science and Technology Development Agency, Thailand, Researcher
- 09/18/02 Stayman, Joseph Webster (EECS)  
*Spatial resolution in penalized-likelihood image reconstruction*  
Biomedical Engin., Johns Hopkins Univ., Research associate faculty
- 04/19/00 Yu, Feng (Dan) (EECS)  
*Statistical methods for transmission image reconstruction with nonlocal edge-preserving regularization*  
University of Bristol, Statistics, Lectureship
- 11/17/99 Yavuz, Mehmet (EECS)  
*Statistical tomographic image reconstruction methods for randoms-precorrected PET measurements*  
Celona, Senior director of engineering
- 07/26/99 Erdoğan, Hakan (EECS)  
*Statistical image reconstruction algorithms using paraboloidal surrogates for PET transmission scans*  
Microsoft, Researcher

#### **PH.D. DISSERTATIONS CO-CHAired**

- 1/12/24 \* Murthy, Naveen (EECS) (with J. Nielsen)  
*Advances in myelin water imaging and stack-of-spirals MRI: Image reconstruction and parameter estimation*  
Siemens, Senior PET Scientist
- 12/8/23 \* Gao, Mingjie (ECE) (with H-P. Chan)  
*Advances in image reconstruction for digital breast tomosynthesis*  
Apple, Imaging scientist
- 12/7/23 \* Li, Zongyu (ECE) (with Y. Dewaraja)  
*Solving Poisson inverse problems in phase retrieval and single photon emission computerized tomography*  
KLA, Algorithm engineer
- 4/26/23 \* Wang, Guanhua (BME) (with D. Noll)  
*Optimizing signal sampling strategies for magnetic resonance imaging*  
qBio, Computational Science Engineer
- 8/1/22 \* Whitaker, Steven (ECE) (with J. Nielsen)  
*Magnetic resonance imaging: Myelin water imaging and model-based image reconstruction*  
GLCS, Sr. Julia Developer

- 5/20/22 \* Crockett, Caroline (EECS) (with C. Finelli)  
*How students and algorithms learn to filter: Investigating students' understanding of signal processing concepts and bilevel methods for learning filters for image reconstruction*  
ECE, Univ. of Virginia, Asst. Prof.
- 4/26/22 \* Guo, Shouchang (ECE) (with D. Noll)  
*Novel models for high-dimensional imaging: high-resolution fMRI acceleration and quantification*  
Microsoft, Data scientist
- 4/29/21 \* Lahiri, Anish (ECE) (with L. Hernandez)  
*Learning-based algorithms for inverse problems in MR image reconstruction and quantitative perfusion imaging*  
Sony R&D Lab, Senior Research Engineer
- 3/1/21 \* Lin, Claire (Yilin) (AIM) (with A. Gilbert)  
*Efficient model-based reconstruction for dynamic MRI*  
KLA, Algorithm Engineer
- 3/19/20 \* Lim, Hongki (EECS) (with Y. Dewaraja)  
*Quantitative image reconstruction methods for low signal-to-noise ratio emission tomography*  
Siemens, Researcher
- 3/15/19 \* Hong, David (EECS) (with L. Balzano)  
*Learning low-dimensional models for heterogeneous data*  
U. Penn., Sr. AI Scientist
- 8/9/18 \* Williams, Sydney (BME) (with D. Noll)  
*Constrained and spectral-spatial RF pulse design for magnetic resonance imaging*  
Univ. of Glasgow, Lecturer (aka Asst. Prof.)
- 3/23/18 \* Nataraj, Gopal (EECS) (with J. Nielsen)  
*Advances in quantitative MRI: acquisition, estimation, and application*  
Univ. of California, Berkeley, Asst. Res. Engineer
- 3/19/18 \* Liu, Lianli (EECS) (with J. Balter)  
*Optimizing magnetic resonance imaging for image-guided radiotherapy*  
Stanford University, Clinical Asst. Prof., Radiation Physics
- 12/8/17 \* Zheng, Jiabei (EECS) (with H. P. Chan)  
*Improving image reconstruction for digital breast tomosynthesis*  
Intel, Research scientist
- 3/23/16 \* Muckley, Matthew (BME) (with D. Noll)  
*Acceleration methods for MRI*  
Facebook AI Research, Research Engineer
- 4/27/15 \* Kim, Jung Kuk (EECS) (with Z. Zhang)  
*Algorithm and architecture co-design for high performance digital signal processing*  
Fujitsu Labs of America, Member of Research Staff
- 3/25/15 \* Sun, Hao (EECS) (with J. Nielsen)  
*Topics in steady-state MRI sequences and RF pulse optimization*  
Apple, Software Engineer
- 11/21/13 Bao, Sid Ying-Ze (EECS) (with S. Savarese)  
*Geometric and semantic scene understanding*  
Magic Leap, Senior Software Engineer



- 11/19/13 \* Zhao, Feng (BME) (with D. Noll)  
*Methods for MRI RF pulse design and image reconstruction*  
KLA-Tencor, Software Engineer
- 8/10/12 \* Yoon, Daehyun (EECS) (with D. Noll)  
*Fast joint design of RF and gradient waveforms for MRI parallel excitation*  
Stanford Univ., Postdoctoral fellow
- 4/13/11 \* Long, Yong (EECS) (with J. Balter)  
*Statistical image reconstruction and motion estimation for image-guided radiotherapy*  
SJTU-UM Joint Institute, Assistant Prof.
- 7/9/10 \* Kublik (Dupuis), Catherine (Math/AIM) (with S. Esedoğlu)  
*Topics in PDE-based image processing*  
Univ. of Dayton, Assistant Prof.
- 3/27/09 \* Olafsson, Valur (EECS) (with D. Noll)  
*Fast and motion robust dynamic R2\* reconstruction for functional MRI*  
Northeastern University, Technical Director of the MRI Center
- 8/7/09 Maleh, Ray (Math/AIM) (with A. Gilbert)  
*Efficient sparse approximation methods for medical imaging*  
L3 Communications, Senior multi-disciplined engineer
- 09/05/08 \* Joshi, Aniket (BME) (with R. Koeppe)  
*Improved quantitative methods for multiple neuropharmacological non-invasive brain PET studies*  
Novartis, Clinical imaging scientist
- 08/21/08 \* Bhagalia, Roshni (EECS) (with B. Kim)  
*Analysis and strategies to enhance intensity-based image registration*  
GE Global Research, Computer vision scientist
- 05/22/08 Bashan, Eran (EECS) (with A. Hero)  
*Efficient resource allocation schemes*  
HygieiaMedical, Entrepreneur
- 04/24/08 Way, Ted (BME) (with H. Chang)  
*Computer-aided diagnosis of pulmonary nodules in thoracic computed tomography*  
Microsoft, Program manager
- 04/23/08 \* Yeo, Teng Beck (Desmond) (EECS) (with B. Kim)  
*Advances in concurrent motion and field-inhomogeneity correction in functional MRI*  
GE Global Research, Senior MR scientist
- 10/04/07 \* Noh, Joonki (EECS) (with V. Solo)  
*True spatio-temporal detection and estimation for functional magnetic resonance imaging*  
Case Western Reserve University, Assistant Professor of Banking and Finance
- 10/01/07 \* Yip, Chun-yu (EECS) (with D. Noll)  
*RF pulse designs for signal recovery in T2\*-weighted functional magnetic resonance imaging*  
Queen's College, Hong Kong, Instructor
- 01/18/07 \* Narayanan, Ramkrishnan (BME) (with C. Meyer)  
*Diffeomorphic transformations for automatic multimodality image registration*  
Eigen, Research scientist
- 08/11/06 \* Lee, Sangwoo (EECS) (with D. Noll)  
*Iterative reconstruction methods for rosette trajectories in functional MRI*  
GE Healthcare, MR application development engineer

- 04/30/04 \* Krishnan, Sumati (BME) (with T. Chenevert)  
*K-space acquisition method for dynamic contrast-enhanced MRI: Application to breast tumors*  
unknown, unknown
- 08/25/03 \* Sutton, Brad (BME) (with D. Noll)  
*Physics-based reconstruction for MRI: Compensating and estimating field inhomogeneity and  $T_2^*$  relaxation*  
UIUC, Associate Professor of Bioengineering
- 05/28/03 Park, Hyunjin (BME) (with C. Meyer)  
*Adaptive registration and atlas based segmentation*  
Gachon Univ., S. Korea, Assistant Professor of Biomedical Engineering
- 05/21/03 Sukovic, Predrag (BME) (with N. Clinthorne)  
*Design of a dual modality PET/cone beam CT scanner - A feasibility study*  
Xoran, CEO
- 02/07/01 Ghanei, Amir (EECS) (with H. Soltanian-Zadeh)  
*A knowledge-based deformable surface model for analysis of medical images*  
Medtronic, Research scientist
- 10/1996 \* Titus, Steven Robert (EECS) (with A. Hero)  
*Improved penalized likelihood reconstruction of anatomically correlated emission data*  
BIS Global, CTO
- For student names with a \*, I had a substantial mentoring role leading to co-authored publications. For the other co-chaired students I had a secondary mentoring role.

#### **PH.D. DISSERTATION CO-CHAIR - CURRENT**

- Hu, Jason (EECS) (with L. Shen)  
*Score-based diffusion algorithms for inverse problems*
- Jacobson, Andrea (BME) (with J. Nielsen)  
*Quantitative MRI*
- Jia, Yixuan (Isaac) (ECE) (with Y. Dewaraja)  
*SPECT imaging using machine learning methods*
- Jones, Robert (ECE) (with J. Balter)  
*MRI*
- Kardonik, Sophia (ECE) (with D. Noll)  
*MRI*
- Murguia, Amaya (ECE) (with J. Nielsen)  
*Quantitative MRI*
- Salazar, Javier (ECE) (with L. Balzano)  
*Subspace learning methods*
- 5/23/24 Xiang, Haowei (ECE) (with D. Noll)  
*Advanced image reconstruction and sampling pattern optimization in silent MRI*
- Yu, Hongze (ECE) (with Y. Jiang)  
*Quantitative MRI*

#### **PH.D. DISSERTATION COMMITTEES - PAST**

- 4/12/24 1. Gupta, Dinank (BME)  
*MRI guidance of transcranial histotripsy treatment*

- 3/5/24 2. Liu, Bowen (ECE)  
*Deep signal compression with feature representation learning*
- 12/15/23 3. Zou, Jiaren (BME)  
*Data-driven joint optimization of acquisition and reconstruction of quantitative MRI*
- 9/1/23 4. Schwartz, Jonathan (MSE)  
*Breaking dose limitations for high-resolution spectroscopy with fused multi-modal electron microscopy*
- 4/10/23 5. Lu, Ning (BME)  
*Transcranial MR-guided histotripsy (TcMRgHt) for brain tumor treatment*
- 3/23/23 6. Sarwar, Tuba (ECE)  
*Optics-free UV/VIS optical spectrometer*
- 2/20/23 7. Han, Kuan (EECS)  
*From Brain Science to AI and back: biologically inspired neural networks, neural encoding & decoding and individualized representation learning of resting-state fMRI*
- 10/28/22 \* 8. Gilman, Kyle (EECS)  
*Scalable algorithms using optimization on orthogonal matrix manifolds*
- 8/4/22 9. Zhang, Junming (EECS)  
*3D scene understanding with deep learning*
- 6/8/22 10. Diaz, Julio (NERS)  
*Radiation transmission imaging applications for nuclear reactor systems*
- 6/7/22 11. Srinivasan Ramanagopal, Manikandasriram (Robotics)  
*Thermal infrared for robot vision in the field*
- 5/5/22 12. Whiteman, Andrew (Biostat)  
*Bayesian analysis of neuroimage data using Gaussian process priors*
- 5/4/22 13. Sengupta, Aunnasha (ECE)  
*In silico tools for investigating the performance of breast cancer imaging technologies*
- 12/15/21 \* 14. Muthukrishnan, Harini (CSE)  
*Improving multi-GPU strong scaling through optimization of fine-grained transfers*
- 11/5/21 15. Wittbrodt, Audelia (Appl Phys)  
*A Monte Carlo twist on the unscented Kalman filter for rare event prediction in non-linear systems*
- 9/2/21 \* 16. Nwadeyi, Valerie (NERS)  
*An MLEM approach to range verification for proton beam therapy using 3-D position sensitive CdZnTe*
- 8/9/21 \* 17. Huang, Zhengyu (EECS)  
*Novel imaging systems using nanophotonic devices*
- 7/22/21 18. Li, Yuan (BME)  
*Investigation of high order diffusion models in glioblastoma by exploring high b-value, echo time (TE), and diffusion time*
- 6/25/21 19. Zhang, Yizhen (ECE)  
*Grounding language learning in vision for artificial intelligence and brain research*
- 6/4/21 20. Steinberger, William (NERS)  
*A handheld dual particle imager for imaging and characterizing special nuclear material*
- 12/22/20 \* 21. Luo, Tianrui (BME)  
*MRI excitation pulse design and image reconstruction for accelerated neuroimaging*

- 12/17/20 \* 22. West, Brendan (CSE)  
*Streaming architectures for medical image reconstruction*
- 6/25/20 23. Wei, Lise (Appl Phys)  
*Medical image analytics (radiomics) with machine/deep learning for outcome modeling in radiation oncology*
- 5/28/20 \* 24. Shah, Niral (NERS)  
*Adaptive imaging with a cylindrical, time-encoded imaging system*
- 3/18/20 \* 25. Shy, Dan (NERS)  
*Super-MeV Compton imaging and other projects using pixelated CdZnTe*
- 1/13/20 26. Prasad, Arvind (EECS)  
*Learning, inference, and unmixing of weak, structured signals in noise*
- 12/19/19 27. Cao, Amos (BME)  
*Methods for physiological artifact correction in oscillating steady state imaging*
- 9/13/19 28. LeBlanc, Joel (ECE)  
*Optical system identification for passive electro-optical imaging*
- 3/20/19 29. Williams, Bennett (NERS)  
*Applications of principal component analysis for position-sensitive semiconductor detectors*
- 2/27/19 30. Goodman, David (NERS)  
*Passive characterization of unknown spaces using large-volume, pixelated CdZnTe*
- 4/25/18 \* 31. Chu, Jiyang (NERS)  
*Advanced imaging algorithms with pixelated CdZnTe detector array*
- 3/12/18 32. Jintamethasawat, Rungroj (BME)  
*Limited angle ultrasound tomography of the compressed breast*
- 1/10/18 33. Liang, Albert (BME)  
*Investigation of the performance of photon counting arrays Based on polycrystalline silicon thin-film transistors*
- 1/5/18 \* 34. Moore, Brian (ECE)  
*Robust algorithms for low-rank and sparse matrix models*
- 12/1/17 35. Ropella, Kathleen (BME)  
*Methods for improving MRI-based conductivity mapping*
- 8/2/17 36. Shahid, Nauman (EE/EPFL)  
*Scalable low-rank matrix and tensor decomposition on graphs*
- 7/28/17 37. Cha, Kenny Heekon (BME)  
*Computer-aided image analysis and decision support system for bladder cancer*
- 7/20/17 38. Li, Jie (ECE)  
*Place recognition and localization for multi-modality underwater navigation with vision and acoustic sensors*
- 6/16/17 \* 39. Lien, Miao-Bin (ECE)  
*Problems in scattering and imaging*
- 5/4/17 40. Hamel, Michael (NERS)  
*A stochastic imaging technique for spatio-spectral characterization of special nuclear material*
- 4/4/17 \* 41. Yoon, Seongjin (NAME)  
*Electron beam X-ray computed tomography for multiphase flows and an experimental study of inter-channel mixing*
- 3/30/17 \* 42. Sampson, Richard (CSE)  
*Architectural support for medical imaging*

- 3/22/17 43. Zhu, Yiyang (BME)  
*Assessment and control of a cavitation-enabled therapy for minimally invasive myocardial reduction*
- 3/20/17 44. Zhao, Chumin (ECE)  
*High resolution active pixel sensor X-ray detectors for digital breast tomosynthesis*
- 1/18/17 45. Weng, Xin (ME)  
*A simplified phase display system for 3D surface measurement and abnormal surface pattern detection*
- 1/13/17 46. Bevill, Aaron (NERS)  
*Uncertainty quantification in emission quantitative imaging*
- 1/12/17 47. Brown, Steven (NERS)  
*Time-encoded thermal neutron imaging using large-volume pixelated CdZnTe detectors*
- 12/13/16 48. Rowland, David (Biophysics)  
*Improving the scope and quality of single-molecule data analysis*
- 8/26/16 49. Cho, Hyun Jeong (ECE)  
*Autofocus and back-projection in synthetic aperture radar imaging*
- 7/15/16 50. Polack, J. Kyle (NERS)  
*A maximum likelihood approach for localizing and characterizing special nuclear material with a dual particle imager*
- 1/12/16 51. Chu, Alan (BME)  
*Simultaneous multislice functional magnetic resonance imaging*
- 12/17/15 52. Prelee, Matt (ECE)  
*Manhattan cutset sampling and sensor networks*
- 11/9/15 53. Chen, Yu-Hui (ECE)  
*Multimodal image fusion and its applications*
- 5/14/15 54. Zhai, Yuanhao (ECE)  
*Perceptual image similarity metrics and applications*
- 12/17/14 55. Watanabe, Takanori (ECE)  
*Scalable machine learning methods for massive biomedical data*
- 7/3/14 56. Tsai, Grace (ECE)  
*On-line, incremental visual scene understanding for an indoor navigating robot*
- 4/16/14 57. Joshi, Sonal (NERS)  
*Coded aperture imaging applied to pixelated CdZnTe detectors*
- 1/9/14 58. Liu, Elson (ECE)  
*Immersion scatterometry for nanoscale grating topography extraction*
- 12/11/13 59. Tsiligkaridis, Theodoros (ECE)  
*High dimensional separable representations for statistical estimation and controlled sensing*
- 12/6/13 60. Jin, Curtis (ECE)  
*New methods and theory for increasing transmission of light through highly-scattering random media*
- 5/17/13 61. Choi, Wongun (ECE)  
*Understanding complex human behaviour in images and videos*
- 8/15/13 62. Park, Se Un (ECE)  
*Reconstruction, classification, and segmentation for computational microscopy*
- 5/9/13 63. Shearer, Paul (Appl. Math.)  
*Separable inverse problems, blind deconvolution, and stray light correction for extreme ultra-violet solar images*

- 5/7/13 64. Peng, Fei (IoE)  
*Optimization methods for volumetric modulated arc therapy and radiation therapy under uncertainty*
- 3/28/13 65. Park, Jae-Young (ECE)  
*Compressed sensing in multi-signal environments*
- 1/14/13 66. Liu, Tzu-Yu (Joyce) (EE)  
*Statistical learning for sample-limited high-dimensional problems with application to biomedical data*
- 12/18/12 \* 67. Jaworski, Jason (NERS)  
*Compton imaging algorithms for position-sensitive gamma-ray detectors in the presence of motion*
- 4/10/12 68. Sricharan, Kumar (ECE)  
*Neighborhood graphs for estimation of density functionals*
- 1/12/12 69. Xu, Li (Mech. Eng.)  
*High quality 3D shape reconstruction via digital refocusing and pupil apodization in multi-wavelength holographic interferometry*
- 1/6/12 70. Hooi, Fong Ming (BME)  
*Optimized beamforming and limited angle tomography algorithms with 2D reconfigurable arrays*
- 12/16/11 71. Haynes, Mark (ECE)  
*Full-wave nonlinear inverse scattering for acoustic and electromagnetic breast imaging*
- 9/14/11 72. Wang, Weiyi (NERS)  
*Techniques and applications of Compton imaging for position-sensitive gamma-ray detectors*
- 8/12/11 73. Lee, Gyemin (ECE)  
*Fusing partially-observed flow cytometry data*
- 6/23/11 \* 74. Wahl, Christopher G. (NERS)  
*Imaging, detection, and identification algorithms for position-sensitive gamma-ray detectors*
- 4/20/11 75. Dasika, Ganesh (CSE)  
*Power-efficient application- and domain-specific processors*
- 4/11/11 76. Huh, Sam Seoung (BME)  
*Surgical imaging probes with positron emitting radiotracers*
- 1/12/11 77. Sarkar, Saradwata (BME)  
*Quantitative assessment of volume change in lesions using image registration*
- 11/23/10 \* 78. Musheinessh, Malakeh (ECE)  
*Model-based image reconstruction for THz imaging systems*
- 11/10/10 \* 79. Kim, Yoon-Chung Christie (BME)  
*Non-Cartesian parallel image reconstruction for functional MRI*
- 7/7/10 80. Sinha, Sumedha P. (BME)  
*Breast cancer detection on automated 3D ultrasound with co-localized 3D X-ray*
- 5/10/10 81. Lee, Benjamin C. (ECE)  
*Conditioning of and algorithms for image reconstruction from irregular frequency samples*
- 5/20/10 82. Al-Salem, Faisal (ECE)  
*Blind super-resolution from multiple undersampled images using sampling diversity*
- 1/8/10 83. Yee, Victoria (ECE)  
*Studies on the asymptotic behavior of parameters in optimal scalar quantization*

- 2/20/09 84. Pandey, Kiran (BME)  
*Mitigation of motion artifacts in functional MRI: A combined acquisition, reconstruction and post processing approach*
- 9/24/08 85. Zhang, Hui (Biostatistics)  
*Advances in modeling and inference of neuroimaging data*
- 9/12/08 86. Peng, Jinzheng (ECE)  
*Polarimetric microwave radiometer calibration*
- 9/10/08 87. Kowash, Ben (NERS)  
*A rotating modulation imager for the orphan source search problem*
- 6/16/08 88. Rao, Arvind (Bioinformatics/ECE)  
*Prospective identification of long-range transcriptional enhancers via integrative genomics*
- 5/2/08 89. Han, Li (BME)  
*Statistical performance evaluation, system modeling, distributed computation and signal pattern matching for a Compton medical imaging system*
- 12/17/07 \* 90. Grissom, Will (BME)  
*RF pulse design for parallel excitation in MRI*
- 10/17/07 91. Dehmollaian, Mojtaba (ECE)  
*Hybrid EM models for purpose of detection and identification of visually obscured targets*
- 10/3/07 92. Ulfarsson, Magnus (ECE)  
*Model based principal component analysis with application to fMRI*
- 7/23/07 93. Rangarajan, Raghuram (ECE)  
*Resource constrained adaptive sensing*
- 8/10/06 94. Shah, Siddarth (BME)  
*Deconvolution algorithms for fluorescence and electron microscopy*
- 5/8/06 \* 95. Blatt, Doron (ECE)  
*Performance evaluation and optimization for inference systems: model uncertainty, distributed implementation, and active sensing*
- 5/2/06 \* 96. Ting, Michael (ECE)  
*Signal processing for magnetic resonance field microscopy (MRFM)*
- 8/29/05 97. Costa, José (ECE)  
*Random graphs for structure discovery in high-dimensional data*
- 5/17/05 98. Steele, Derek (BME)  
*Three-dimensional, static displacement, stimulated echo, magnetic resonance elasticity imaging*
- 3/31/05 99. Park, Sang-June (NERS)  
*A very high resolution small animal PET based on the Compton PET concept*
- 2/4/05 100. Kreucher, Chris (ECE)  
*An information-based approach for sensor resource allocation*
- 01/25/05 101. Shih, Meng-Fu (ECE)  
*Unicast internet tomography*
- 1/11/05 102. Neemuchwala, Huzefa (BME)  
*Entropic graphs for image registration*
- 6/15/04 103. Bartsch, Mark (ECE)  
*Automated singer identification in polyphonic music*
- 4/26/04 104. Xi, Bowei (Stat)  
*Estimating internal link loss rates using active network tomography*

- 3/5/04 105. Chakravorty, Suman (AERO)  
*Design and optimal control of multi-spacecraft interferometric imaging systems*
- 12/3/03 106. Holt, Kevin (ECE)  
*Methods and design algorithms for predictive quantization of signals and images*
- 07/30/03 107. Torres-Fernandez, Jose E. (ECE)  
*Construction of signal-dependent Cohen's class time-frequency representations using iterative blind deconvolution*
- 04/25/03 108. Mills, Kurt (ECE)  
*Image plane holography*
- 04/25/03 109. Wang, Yue (Biostatistics)  
*Statistical methods for biomarkers*
- 10/18/02 110. Wang, Yao (BME)  
*Forward-viewing ring annular array in intravascular ultrasound imaging*
- 07/24/02 111. Kragh, Thomas (ECE)  
*Tradeoffs and limitations in statistically based image reconstruction problems*
- 08/12/02 112. Sharp, Greg (CSE)  
*Automatic and stable multiview 3D surface registration*
- 06/13/02 113. Slyz, Marko (ECE)  
*Lossless image compression using combinations of simple components*
- 01/23/02 114. Li, Jia (ECE)  
*Three dimensional shape modeling: Segmentation, reconstruction, and registration*
- 07/23/01 115. Cheng, Corey (ECE)  
*Visualization, measurement, and interpolation of head-related transfer functions with applications in electro-acoustic music*
- 01/19/01 116. Kim, Hyung Soo (ECE)  
*Adaptive target detection in radar imaging*
- 01/04/01 117. Nickel, Robert (ECE)  
*Generalized scale transforms, theory and applications*
- 12/18/00 118. Ghalib, Ali M. (Civ. Env. Eng.)  
*Laboratory and in-situ soil characterization by computer vision*
- 08/29/00 119. Hua, Chia-ho (BME)  
*Compton imaging system development and performance assessment*
- 05/24/00 120. Lin, Steve (CSE)  
*Photometric modeling of specular and diffuse appearance*
- 05/19/00 \* 121. Piramuthu, Robinson (ECE)  
*Robust fusion of MRI and ECT data, and acceleration of EM algorithm using proximal point approach*
- 01/25/00 122. Kwak, Byung-Jae (ECE)  
*Nonlinear system identification with an application to hydraulic actuator friction dynamics*
- 10/25/99 123. Park, Jiyoung (NERS)  
*Neutron scattering correction functions for neutron radiographic images*
- 11/23/99 124. Salinger, Jeremy A. (ECE)  
*The impact of computer architecture features on image processing application execution times: A case study using MPEG encoding on the IBM SP2*
- 07/14/99 125. Crowe, John R. (ECE)  
*Ultrasonic arterial imaging with an interluminal catheter array*



- 05/14/99 126. Sterian, Andrew D. (ECE)  
*Model-based segmentation of time-frequency images for musical transcription*
- 04/29/99 127. Hunter, David (Statistics)  
*Optimization transfer algorithms in statistics*
- 04/19/99 128. Tashkandi, Esam Ahmed (Oral Health Sciences)  
*Accuracy of using spectral color transformation in the prediction of tooth colors*
- 01/25/99 129. Wan, Hong (BME)  
*Thermal dose optimization for ultrasound tissue ablation*
- 08/03/98 130. Moo, Peter W. (ECE)  
*Asymptotic analysis of lattice-based quantization*
- 01/12/98 131. Lubinski, Mark A. (BME)  
*Speckle tracking techniques for ultrasound elasticity imaging*
- 11/24/97 132. Krishnan, Sriram (ECE)  
*Adaptive and nonlinear ultrasound imaging*
- 09/15/97 133. Bell, Amy E. (ECE)  
*1D and 2D phase retrieval by solving linear systems of equations and by using the wavelet transform*
- 07/22/97 134. Haddadin, Osama S. (ECE)  
*Ultrasound inverse scattering for tomographic imaging and self-focusing arrays*
- 05/14/97 135. Rajashri Rajaram Joshi (ECE)  
*Multiresolution fast algorithms for one-dimensional inverse scattering and linear least-squares estimation*
- 04/03/97 136. Guevara, Rowena Cristina L. (ECE)  
*Modal distribution analysis and sum of sinusoids synthesis of piano tones*
- 01/03/97 137. Ng, Chor-Yi (BME)  
*Preliminary studies on the feasibility of addition of vertex view to conventional brain SPECT imaging*
- 10/28/96 138. Sharfer, Ilan (ECE)  
*Recursive algorithms for digital communications using the discrete wavelet transform*
- 09/09/96 139. Ribas-Corbera, Jordi (ECE)  
*Optimizing the motion vector accuracies in block-based video coding*
- 05/17/96 \* 140. Park, Doo-Yong (Industrial Health, School of Public Health)  
*Tomographic reconstruction of air contaminant concentration maps using an open path Fourier transform infrared spectrometer*
- 04/26/96 \* 141. Zhang, Yong (BME)  
*Improved SPECT radioactivity quantification using MRI side information*
- 08/04/94 \* 142. Usman, Mohammed (ECE)  
*Biased and unbiased Cramer-Rao bounds: computational issues and applications*

For student names with a \*, I had a collaboration leading to co-authored publications.

#### **PH.D. DISSERTATION COMMITTEES - EXTERNAL**

143. Zheng, Xuehang (SJTU-UM Joint Inst.)  
*CT image reconstruction*

- 12/16/22 144. Guillaume, Daval-Fr erot (CEA Saclay)  
*Deep neural networks for MR image reconstruction and B0 inhomogeneity correction in non-Cartesian susceptibility weighted imaging at 3 Tesla*
- 2/25/22 145. Yaman, Burhaneddin (Univ. of Minnesotat)  
*Self-supervised physics-guided deep learning for solving inverse problems in imaging*
- 04/12/19 146. Chapdelaine, Camille (Universite Paris-Saclay)  
*Bayesian iterative reconstruction methods for 3D X-ray computed tomography*
- 11/11/14 147. Ravishankar, Sai Prasad (ECE, Illinois)  
*Adaptive sparse representations and their applications*
- 2/4/08 148. Fattahi, Shahin (ECE, Univ. of Western Ontario)  
*A unified investigation of noise-amplification in sensitivity encoded MRI*

#### **PH.D. DISSERTATION COMMITTEES - CURRENT**

149. Muppala, Aditya Varma (ECE)  
*Radar imaging systems with sparse arrays*
150. Hougen, Conrad (ECE)  
*Network models for learning uncertain and multimodal data*
151. Rice, Alexander (NERS)  
*Gamma-ray imaging using pixelated CdZnTe*
152. Shi, Naichen (IOE)  
*Federated data analytics for the internet of things*
153. Ritchie, Alexander (EECS)  
*Mixtures of nonlinear regressions, online supervised PCA, and instance dependent label noise*
154. Wang, Xiaokai (BME)  
*Imaging and modeling gastrointestinal motor events in rats and humans*
155. Cummings, Evan (BME)  
*MR fingerprinting for fat-water separation using rosettes*

#### **M.S. DISSERTATION COMMITTEES - PAST**

- 4/21/20 156. Xijia Quan (BME)  
*A 3D tailored RF pulse optimization algorithm by separating magnitude and phase of the target pattern for signal recovery of IV regions in T2\*-weighted functional MRI*
- 06/30/98 157. Kumar Gopalakrishnan (ECE)  
*Backward-adaptive architectures for progressive image compression*

#### **GRADUATE STUDENT DIRECTED STUDY (MS STUDENT PROJECTS)**

- 2022 Xu, Alec (EECS)  
Heteroscedastic mixture PCA models
- 2022 Najarian, Cyrus (MSTP summer rotation)  
Myelin exchange quantification
- 2022 Xu, Alec (EECS)  
Union of subspace models for heteroscedastic data
- 2021 Cheek, Eric (EECS)  
SPECT image reconstruction

2020	Gupta, Rupesh (EECS) EECS 559 on SPECT image reconstruction
2019	Wen, Zheyu (EECS) SPECT scatter correction via CNN
2018	Zhang, Ziyu (Sylvia) (BME) BME 590 on low-dose CT reconstruction
2018	Xu, Jiarui (EECS) Patient Response prediction based on radiomic features of Y-90 PET images
2016	Lahiri, Anish (EECS) Parallelizable algorithms for dictionary learning
2016	Ji, Yifan (BME) BME 590 on accelerating CT reconstruction
2016	Shi, Junyan (BME) BME 590 on MRI field map estimation
2014-2016	Gonzales, Brian (EECS) CT image reconstruction
2012-2016	Kwon, Jean Young Song (EECS) Image registration
2011-2012	Mahta, Mousavi (EECS) MR image reconstruction
1/05	Paidi, Ajay (BME) X-ray CT cone-beam weighted image reconstruction methods
9/03	Vaideswaran, Jyotsna (EECS) Direct brain interface system development
9/01	Sowers, Wesley (EECS) Signal processing for human direct brain interface
9/01	Rajukumar, Mukundakumar (EECS) Image registration for fMRI
9/01	Naik, Vipul (EECS) Bioluminescence tomographic image reconstruction
9/00	Grekowicz, Brian (BME) Development of fast and accurate rotation-based tomographic projector
9/00	Ensley, Matt (EECS) Resolution properties of SPECT imaging with high-resolution collimation
1/99	Ferrise, Gianni (BME) Signal processing for human direct brain interface
9/98	Brown, Kevin (BME) Analysis of resolution noise tradeoffs in pinhole imaging systems
9/97	Givens, Brendhan (EECS) Preconditioning methods for tomographic image reconstruction
5/94	Booth, Scott (BME) Preconditioning methods for conjugate gradient image reconstruction

#### **GRADUATE STUDENT VISITORS**

2019	Cristóbal Martínez Sánchez, Universitario Gregorio Marañón
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2019	Siqi Ye, SJTU-UM Joint Institute
2019	Zhipeng Li, SJTU-UM Joint Institute
2016,2017	Xuehang Zheng, SJTU-UM Joint Institute
2008	Mónica Abella, Hospital General Univ. Gregorio Marañón, Spain

### UNDERGRADUATE RESEARCH MENTORING

24W	Cadavid, Simon Mixture PCA for heteroscedastic data (EECS 499)
23S	Kim, Minseo (Sonia) Machine learning for accelerated MRI (Honors capstone)
22W	Nanda, Harshit Julia software for image reconstruction
22W-23W	Kim, Minseo (Sonia) Julia software for image reconstruction
22W-23W	Block, Jacob (NSF REU) Supervised PCA for heteroscedastic data
21F/22W	Heinonen, Tapio (NSF REU) Julia software for image reconstruction
2021 summer	Yang, Hongyi Machine learning using Julia language
2021 W/F	Hou, Daniel Machine learning using Julia language (EECS 399 project)
2020 fall	Bhatt, Aditya (EECS 499 project) Leveraging machine learning for cardiac self-gating in cine MR fingerprinting
21F-22W	Shah, Neel (EECS 399 project) Neural network methods for image formation
2020 summer	Martin, Connor Machine learning using Julia language (NSF REU)
2019 fall - 2020	Dong, Jing & Martin, Connor & Wan, Daniel UROP: Digital image processing using Julia language
2018 fall - 2019	Fu, Qichen Machine-learning image reconstruction for MRI
2017 fall	Rohrer, Sam (engineering honors capstone) Parallelizable CT image reconstruction using GPU and Julia
2017 summer	Yao, Yuan Lightfield imaging GPU algorithm software development
2017 fall	Gao, Mingjie (EECS 499 project) MRI parameter mapping for MR fingerprinting
2017 summer	Gao, Mingjie MRI pulse sequence optimization
2016 fall/2017W	Reggentin, Paul (EECS 499 project) Accelerated MR parameter mapping
2015 winter	Reggentin, Paul (EECS 399 project) Quadratic majorizers for optimizing empirical cost functions

2013 summer	Ganguly, Shamik (SURE project) GPU acceleration of cone-parallel CT reconstruction
2013 winter	Malinas, Rebecca (EECS 499 project) Cone-parallel rebinning for cone-beam CT image reconstruction
2011 fall	Liu, Zhihao (EECS 499 project) Regularization parameter selection using SURE for MRI
2011 fall	Kurleto, Joe (EECS), Multi-GPU parallelization of cone-beam X-ray CT image reconstruction.
2011 summer	Liu, Zhihao and Rosen, Jeffrey (EECS) Regularization parameter selection using SURE, jointly mentored with Sathish Ramani.
2010 summer	Handy, Greg (SROP from U. Maryland Math), Cone-beam CT image reconstruction by single-slice rebinning.
2010 summer	Wu, Meng (EECS), GPU parallelization of cone-beam X-ray CT image reconstruction.
2010 winter	Wei, Wenlay Esther (EECS), Marion Sarah Parker Scholar Acceleration of cone-beam X-ray CT image reconstruction using GPU.
2009 summer	James, Ryan (UROP); Lauer, Matthew GPU acceleration of cone-beam X-ray computed tomographic image reconstruction.
2005 winter	Caparanis, Nicole; Laskowsky, Patricia (EECS 499 projects) Cone-beam X-ray computed tomographic imaging: system and reconstruction
2004 summer	Masuda, Taka (EECS 499 project) Implementation of Feldkamp cone-beam reconstruction algorithm.
2004 summer	Laskowski, Patricia; Caparanis, Nicole (EECS), Marion Sarah Parker Scholars Image reconstruction for three-dimensional X-ray computed tomography.
2003 summer	Kurikesu, Daniel (EECS), NSF REU / EECS Spring-Summer Undergrad. Fellowship Analysis of imaging spatial resolution by statistical criteria and cross-platform graphical user interface for statistical image reconstruction software.
2003 summer	Lai, (Eva) Ka Man, (EECS), Marion Sarah Parker Scholar Cross-platform graphical user interface for statistical image reconstruction software.
2002 summer	Seamans, John (EECS), NSF REU Image reconstruction methods for 3D SPECT using spherically symmetric bases.
2002 summer	Grikschat, Steve (EECS), NSF REU Signal detection methods for electrocorticogram brain signals.
2001 summer	Dimitrov, Ned (EECS Spring/Summer Undergraduate Fellowship) Fast cone-beam forward and back-projectors for 3D X-ray computed tomography.
2000 summer	Lamm, Margaret (EECS), Marion Sarah Parker Scholar Robust image segmentation of PET attenuation maps
1999 winter	Fu, Kaiann, EECS 499 project Systems analysis of bipolar neurons in the visual system
1999 winter	Slicker, Sarah, EECS 499 project Systems analysis of bipolar neurons in the visual system
1997 fall	Ghia, Tina (ChE), Marion Sarah Parker Scholar ROC comparison of statistical methods for SPECT attenuation correction.
1997 fall	Tinsley, Maya (EECS), Marion Sarah Parker Scholar Neural network based approaches to position estimation in Anger cameras.

1997 fall	Jenkins, Andrea (EECS), Marion Sarah Parker Scholar Neural network based approaches to position estimation in Anger cameras.
1997 summer	Eggleston, Joseph E., EECS Spring/Summer Undergraduate Fellowship Parallel processing methods for tomographic image reconstruction
1997 summer	Kean, Bradley, EECS Spring/Summer Undergraduate Fellowship Interactive JAVA tools for image processing education
1997 summer	Chen, Yiching (Maxine) (EECS), Marion Sarah Parker Scholar ROC comparison of statistical methods for SPECT attenuation correction

### **OUTREACH MENTORING**

2021 summer	Heinonen, Tapio (High School Student) Julia software for image reconstruction
2019 summer	Heinonen, Helena (High School Student) Julia software for image reconstruction
2018 summer	Hou, Daniel (High School Student) Julia software for image reconstruction
2004 summer	Ge, Wenqi (High School Student) Developed cross-platform graphical user interface for image reconstruction software

**GRANT SUPPORT - CURRENT**

Principal Investigator: Laura Balzano

Title: *NSF*

2331590 CIF: Small: Learning low-dimensional representations with heteroscedastic data sources  
1/1/24-12/31/26

Principal Investigator: Jeffrey A. Fessler

Title: *Limited-view CT reconstruction with minimal training data*

LANL 612552

10/15/20-9/30/24

Principal Investigator: Doug Noll

Title: *Novel methods for dynamic MRI of gastrointestinal motor function*

NIH R21 EB034344

1/15/24-12/31/25

Principal Investigator: Jon-Fredrik Nielsen

Title: *A harmonized vendor-agnostic environment for multi-site functional MRI studies*

NIH U24 NS120056

9/1/21-2/28/27

Principal Investigator: Luis Hernandez

Title: *Quantitative MR imaging of vascular factors in Parkinson's disease*

NIH R01 NS 112233

9/30/20-6/30/25

Principal Investigator: Yuni Dewaraja

Title: *Imaging and dosimetry of Yttrium-90 for personalized cancer treatment*

NIH R01 EB022075

7/1/20-4/30/25 NCTX

Principal Investigator: Yuni Dewaraja

Title: *Bringing capacity for theranostic dosimetry planning to the nuclear medicine clinic*

NIH R01 CA240706

6/1/20-5/31/25

Principal Investigator: Doug Noll

Title: *High SNR functional brain imaging using oscillating steady state MRI*

NIH U01 EB026977

9/30/18-6/30/23, nctx to 6/31/24

**GRANT SUPPORT - PENDING**

Principal Investigator: Yuni Dewaraja

Title: *Enhancing radioligand therapy for prostate cancer with biomarker and dosimetry guided personalization*

NIH ?

9/1/24-8/31/29

Principal Investigator: Qing Qu, Liyue Shen

Title: *Collaborative Research: III: Medium: Efficient diffusion models for robust scientific machine learning*

NSF 2402766

9/1/24-8/31/27

Principal Investigator: Liyue Shen

Title: *Efficient diffusion models for scientific machine learning*

UM MICDE

9/1/23-8/31/24

Principal Investigator: Doug Noll

Title: *Silent Functional MRI Using Looping Star*

NIH R01 EB 035618

9/1/24-8/31/28

Principal Investigator: Luis Hernandez-Garcia

Title: *Development of layer specific fMRI for clinical scanners*

NIH R01 EB035156

9/1/23 2,741,340 total

Improved fMRI

Principal Investigator: Zhongming Liu

Title: *Self-supervised learning for representing and decoding brain activity linked to behavior*

NIH todo

9/1/23 3,150,405 total

Principal Investigator: Zhongming Liu

Title: *Explainable artificial intelligence to represent, model, and predict brain fMRI activity*

NIH R01 MH 128899

12/1/22-11/30/27



**GRANT SUPPORT - PAST**

Principal Investigator: Jon Nielsen

Title: *Toward robust whole-brain 3D functional MRI at 3T with reduced signal loss artifacts*

NIH R21 AG061839

408,481 total

Principal Investigator: Clayton Scott

Title: *BIGDATA: F: Random and adaptive projections for scalable optimization and learning*

NSF IIS 1838179

01/01/19–12/31/21, nctx to 12/31/22

Principal Investigator: J. A. Fessler

Title: *Supplement: Accelerated statistical image reconstruction methods for X-ray CT*

NIH U01 EB018753

8/1/2018-7/31/2019

Principal Investigator: Jeffrey A. Fessler/ Heang-Ping Chan (MPI)

Title: *Advanced breast tomosynthesis reconstruction for improved cancer diagnosis*

NIH R01 CA214981

1/10/18-12/31/22 NCTX to 12/31/23

Principal Investigator: Jeffrey A. Fessler/ Douglas Noll (MPI)

Title: *Fast functional MRI with sparse sampling and model-based reconstruction*

NIH R01 EB023618

3/1/17-12/31/20, NCTX to 12/21/22

Principal Investigator: Yuni Dewaraja

Title: *Imaging and dosimetry of Yttrium-90 for personalized cancer treatment*

NIH R01 EB022075-01A1

9/15/16-6/30/20

Principal Investigator: Z Zhong / T Norris / J Fessler (MPI)

Title: *Transformative light-field nanophotonics*

W M Keck Foundation Phase II

1/1/16-12/31/18, NCTX to 12/31/19 during NCTX

Principal Investigator: Zhong He

Title: *Advance integrated gamma-ray imaging and spectroscopy for directional isotope ID using Polaris systems*

DNDO Sandia PO 1511621

2/13/15-9/30/17, NCTX to 9/30/18

Principal Investigator: J. A. Fessler

Title: *Accelerated statistical image reconstruction methods for X-ray CT*

NIH NIBIB U01 EB018753

8/1/14-7/31/18, NCTX to 7/31/19

Principal Investigator: Randall Ten Haken / Theodore Lawrence (MPI)

Title: *Optimization of high dose conformal therapy*

NIH P01 CA 059827

5/15/14-4/30/19

Principal Investigator: J Fessler, J Nielsen, D Noll, R Albin (MPI)  
Title: *Quantitative MRI for early detection and monitoring of movement disorders*  
UM M-Cubed  
1/1/16-4/29/17

Principal Investigator: Jeffrey A. Fessler/ Y Long (MPI)  
Title: *Ultra-low dose CT image reconstruction based on big data priors*  
UM-SJTU Collaboration  
9/1/15-8/31/17, NCTX to 12/31/17

Principal Investigator: Jeffrey A. Fessler  
Title: *X-ray CT image reconstruction using statistical methods: 2015-16*  
GE Medical Systems N020874  
9/1/15-8/31/16, NCTX to 12/31/16

Principal Investigator: Jon-Fredrik Nielsen  
Title: *Toward layer-specific BOLD fMRI in human cortex at 3T using 3D zoomed-EPI and small-tip fast-recovery imaging*  
NIH R21 EB019653  
4/1/15-1/31/17, NCTX to 1/31/18

Principal Investigator: Volker Sick  
Title: *Volumetrically resolved single-shot single-access-point imaging of translucent objects*  
NSF CBET 1402707  
6/1/14-5/31/17, NCTX to 5/31/18

Principal Investigator: Jeffrey A. Fessler  
Title: *Accelerating medical image reconstruction using Xeon Phi Co-processor*  
Intel  
11/1/13-12/31/13

Principal Investigator: Jeffrey A. Fessler  
Title: *X-ray CT image reconstruction using statistical methods: 2013-14*  
GE Medical Systems N004789-14  
9/1/13-8/31/14

Principal Investigator: Jeffrey A. Fessler, Anna Gilbert, Doug Noll  
Title: *Imaging fleeting thoughts*  
UM M-Cubed  
9/1/13-8/31/14

Principal Investigator: Jeffrey A. Fessler  
Title: *X-ray CT image reconstruction using statistical methods: 2012-13*  
GE Medical Systems N004789-13  
9/1/12-8/31/13

Principal Investigator: J. A. Fessler/ Dan Weller  
Title: *Adaptive techniques for robust high-resolution functional magnetic resonance imaging*  
NIH F32-EB-015914  
8/1/12-7/31/14

Principal Investigator: Jeffrey A. Fessler

Title: *One-sided 3D imaging of non-uniformities in non-metallic materials*

NASA STTR phase II T7.01-9931

9/15/11-9/15/13

Principal Investigator: Heang-Ping Chan

Title: *Improvement of microcalcification detection in digital breast tomosynthesis*

NIH BRP R01 CA 151443

9/2/11-7/31/16, NCTX 7/31/17

Principal Investigator: Jeffrey A. Fessler

Title: *X-ray CT image reconstruction using statistical methods: 2011-12*

GE Medical Systems N004789-13

9/1/11-8/31/12

Principal Investigator: Yuni Dewaraja

Title: *Imaging based dosimetry for individualized internal emitter therapy*

NIH NCI 2 R01 EB001994-12

5/1/11-4/30/15

Principal Investigator: Jon-Fredrik Nielsen

Title: *Improved functional MRI using balanced SSFP and parallel transmission*

NIH R21 EB-012674-01

12/15/10-11/30/12, NCTX to 11/30/14

Principal Investigator: Jeffrey A. Fessler

Title: *X-ray CT image reconstruction using statistical methods: 2010-11*

GE Medical Systems N004789-12

9/1/10-8/30/11

Principal Investigator: Jeffrey A. Fessler & Bruno De Man

Title: *Model-based image reconstruction for X-ray CT in lung imaging*

NIH 1-R01-HL-098686-01-A1

8/1/10-5/31/13, NCTX to 5/31/14

Principal Investigator: Ted Norris

Title: *One-sided 3D imaging of non-uniformities in non-metallic space flight materials*

Picometrix NASA STTR

5/1/10-2/28/11

Principal Investigator: Jeffrey A. Fessler

Title: *X-ray CT image reconstruction using statistical methods: 2009-10*

GE Medical Systems N004789-10

5/1/09-04/30/10, NCTX to 8/31/10

Principal Investigator: Alfred O. Hero

Title: *UM Subcontract from University of Washington: Statistical approaches to magnetic resonance force microscopy (MRFM) inverse problems*

Univ. of Washington Army 145611

3/1/09-2/28/10

Principal Investigator: Charles R. Meyer; Project 3 director: J. A. Fessler  
Title: *Automatic 3D registration for enhanced cancer management / Project 3*  
NIH/NCI 1P01 CA87634-06A2  
01/12/09-02/28/14, NCTX to 2/28/15

Principal Investigator: Satish Narayanasamy  
Title: *Efficient execution of medical imaging applications on the Intel Larrabee system*  
Intel Gift 53718  
9/1/08-8/31/11

Principal Investigator: Jeffrey A. Fessler (predoctoral fellowship for Kim Khalsa)  
Title: *Regularized reconstruction of dynamic contrast-enhanced MR images for evaluation of breast lesions*  
Army W81XWH-08-1-0273  
9/1/08-9/30/10, NCTX to 1/31/11

Principal Investigator: Jeffrey A. Fessler  
Title: *2008 International Symposium on Biomedical Imaging (ISBI) conference support*  
NIH R13 EB 008630-01  
5/14/08-5/15/08

Principal Investigator: Doug Noll  
Title: *MRI parallel excitation for neuroimaging applications*  
NIH NS R01 NS 058576  
01/01/08-12/31/12, NCTX to 12/31/14

Principal Investigator: Zhong He  
Title: *Development of real-time imaging and isotope detection algorithms for 3-D position-sensitive semiconductor gamma-ray imaging spectrometers and sensor networks*  
DNDO 2008-DN-077-ARI007-04  
9/1/07-8/31/12

Principal Investigator: Jeffrey A. Fessler  
Title: *X-ray CT image reconstruction using statistical methods*  
GE Medical Systems N004789  
9/1/07-12/31/08, NCTX to 8/31/09

Principal Investigator: Yuni Dewaraja  
Title: *SPECT/CT image-based dosimetry in radionuclide therapy*  
NIH NCI 2 R01 EB001994-08  
7/06/07-4/30/11

Principal Investigator: Jeffrey A. Fessler  
Title: *2007 International Symposium on Biomedical Imaging (ISBI)*  
NIH R13 EB 007469-01  
4/12/07-4/15/07

Principal Investigator: Jeffrey A. Fessler  
Title: *UM subcontract: Quantitative PET/CT oncology imaging*  
Univ. of Washington 05-5341  
9/1/06-7/31/11

Principal Investigator: Heang-Ping Chan

Title: *Digital tomosynthesis mammography: Computer-aided analysis of masses*

NIH 1 R33 CA120234-01

9/1/06-8/31/10, NCTX to 8/31/11

Principal Investigator: Jeffrey A. Fessler

Title: *X-ray CT image reconstruction using statistical methods (year 5)*

GE Medical Systems N004789

9/1/06-8/31/07, NCTX to 2008-6-1

Principal Investigator: Randall Ten Haken

Title: *Optimization of high dose conformal therapy*

NIH 2 P01 CA59827-11A1

7/1/06-6/30/11, NCTX to 6/30/12

Principal Investigator: Jeffrey A. Fessler

Title: *X-ray CT image reconstruction using statistical methods (year 4)*

GE Medical Systems N004789

9/1/05-9/30/06, NCTX to 6/1/07

Principal Investigator: Jeffrey A. Fessler

Title: *X-ray CT image reconstruction using statistical methods (year 3)*

GE Medical Systems N004789

9/1/04-8/30/05, NCTX to 7/31/06

Principal Investigator: Doug Noll

Title: *Elimination of head movement artifact in fMRI*

NIH 1 R01 EB002683

09/01/03-7/31/08, NCTX to 7/31/09

Principal Investigator: Yuni Dewaraja

Title: *Monte Carlo simulation of high energy photon imaging*

NIH NCI 5 R01 EB001994-07

7/01/03-6/30/07, NCTX to 7/05/07

Principal Investigator: Jeffrey A. Fessler

Title: *X-ray CT image reconstruction using statistical methods (year 2)*

GE Medical Systems N004789

5/27/03-05/26/04

Principal Investigator: Michael Kilbourn

Title: *Advancing PET science for new measures of brain function*

DOE DE-FG02-87ER60561

1/1/03-12/31/05

Principal Investigator: Doug Noll

Title: *Signal recovery in susceptibility-based functional MRI*

NIH/NIDA R01 DA15410-01

9/10/02-6/30/07, NCTX 6/30/08

Principal Investigator: Jeffrey A. Fessler

Title: *REU: Regularization methods for tomographic image reconstruction*

NSF BES-9982349 AMD 02

07/01/02-6/30/03

Principal Investigator: Charles R. Meyer

Title: *Automatic 3D registration for enhanced cancer management / Project 4*

NIH/NCI 1P01 CA87634-01A3

04/01/02-03/31/07, NCTX: 6/30/08

Principal Investigator: Dan Rugar (IBM)

Title: *Single spin imaging*

DARPA MOSAIC

04/01/02-03/31/04

Principal Investigator: Jeffrey A. Fessler

Title: *X-ray CT image reconstruction using statistical methods (year 1)*

GE Medical Systems N003218

12/01/01-11/30/02

Principal Investigator: Charles R. Meyer

Title: *Lung image database*

NIH/NCI 1U01 CA91099-01

08/01/01-07/31/06

Principal Investigator: Simon Levine

Title: *Direct brain interface based on event detection in ECoG*

NIH/NINDS R01 EB002093

04/01/01-03/31/06

Principal Investigator: Benedick Fraass

Title: *Optimization of high dose conformal therapy*

NIH P01 CA59827-06A1

9/1/00-7/31/05, NCTX to 7/06

Principal Investigator: Ken Koral

Title: *Techniques for calculating tumor dosimetry from imaging*

NIH R01 CA87955

07/01/00-06/30/04

Principal Investigator: Jeffrey A. Fessler

Title: *Regularization methods for tomographic image reconstruction*

NSF BES-9982349

07/01/00-6/30/03, NCTX-6/30/04

Principal Investigator: Jeffrey A. Fessler

Title: *Physics-based reconstruction of magnetic resonance images*

UM Center for Biomedical Engin. Research (CBER)

07/01/00-06/30/01

Principal Investigator: Edward Ficaro  
Title: *Technical evaluation of ADAC Vantage system*  
ADAC Corp.  
10/1/98-5/1/99

Principal Investigator: W. L. Rogers  
Title: *Radionuclides: Radiation detection and quantification*  
NIH R01 CA32846  
8/1/98-7/31/01

Principal Investigator: Jeffrey A. Fessler  
Title: *Statistical methods for image reconstruction in ECT*  
NIH/NCI CA60711-06  
7/1/98-6/31/03, NCTX-4/30/05

Principal Investigator: Neal Clinthorne  
Title: *Simultaneous X-ray and Emission Computed Tomography*  
NIH R01 CA 65637  
06/01/97-05/31/00

Principal Investigator: Jeffrey A. Fessler  
Title: *Spatial resolution properties of penalized-likelihood image reconstruction methods*  
Whitaker Foundation  
9/1/96-8/31/99

Principal Investigator: Richard L. Wahl  
Title: *Positron Emission Tomography of Breast Carcinoma*  
NIH R01 CA 52880  
3/1/96-12/31/00

Principal Investigator: W. Leslie Rogers  
Title: *Estimation strategies for nuclear medical imaging*  
NIH R01 CA 54362  
3/27/95-12/31/99

Principal Investigator: David E. Kuhl  
Title: *New techniques for positron emission tomography of human neurological disorders*  
DOE DE-FG02-87ER60561  
1/1/94-12/31/96

Principal Investigator: Jeffrey A. Fessler  
Title: *Statistical methods for attenuation correction in ECT*  
NIH R29 CA 06711-01  
7/1/93-6/30/98

Principal Investigator: David E. Kuhl  
Title: *Alexander Hollaender Distinguished Postdoctoral Fellowship*  
DOE  
06/03/91 - 12/02/92

## PUBLICATIONS

google scholar page

### Books

- [2] J. A. Fessler and R. R. Nadakuditi, *Linear algebra for data science, machine learning, and signal processing*. Cambridge, 2024.
- [1] J. A. Fessler, *Image reconstruction: Algorithms and analysis*. ., 2006, Book in preparation.

### Book Chapters

- [4] J. A. Fessler, “Fundamentals of CT reconstruction in 2D and 3D,” in *Comprehensive Biomedical Physics, Vol. 2: X-Ray and Ultrasound Imaging*, A. Brahme, Ed., Netherlands: Elsevier, 2014, pp. 263–95.
- [3] B. De Man and J. A. Fessler, “Statistical iterative reconstruction for X-ray computed tomography,” in *Biomedical Mathematics: Promising Directions in Imaging, Therapy Planning and Inverse Problems*, Y. Censor, M. Jiang, and G. Wang, Eds., ISBN: 9781930524484, Madison, WI: Medical Physics Publishing, 2010, pp. 113–40.
- [2] J. E. Huggins, B. Graimann, S. Y. Chun, J. A. Fessler, and S. P. Levine, “Electrocorticogram as a brain computer interface signal source,” in *Towards Brain-Computer Interfacing*, G. Dornhege, del R. Millán, T. Hinterberger, D. McFarland, and K.-R. Mueller, Eds., Cambridge: MIT Press, 2007, pp. 129–46.
- [1] J. A. Fessler, “Statistical image reconstruction methods for transmission tomography,” in *Handbook of Medical Imaging, Volume 2. Medical Image Processing and Analysis*, M. Sonka and J. M. Fitzpatrick, Eds., Bellingham: SPIE, 2000, pp. 1–70.

### Refereed Journal Papers

- [241] H. Xiang, J. A. Fessler, and D. C. Noll, “Model-based reconstruction for looping-star MRI,” *Mag. Res. Med.*, vol. 91, no. 5, 2104–13, May 2024.
- [240] J. Schwartz, Z. W. Di, Y. Jiang, J. Manassa, J. Pietryga, Y. Qian, M. Cho, J. Rowell, H. Zheng, R. Robinson, J. Gu, S. Rozeveld, P. Ercius, J. A. Fessler, T. Xu, M. C. Scott, and R. Hovden, “Imaging 3D chemistry at 1 nm resolution with fused multi-modal electron tomography,” *Nature Comm.*, vol. 15, p. 3555, Apr. 2024.
- [239] T. Hong, L. Hernandez, and J. A. Fessler, “A complex quasi-Newton proximal method for image reconstruction in compressed sensing MRI,” *IEEE Trans. Computational Imaging*, vol. 10, 372–84, 2024.
- [238] Y. Jia, Z. Li, A. Akhavan-Allaf, J. A. Fessler, and Y. K. Dewaraja, “<sup>90</sup>Y SPECT scatter estimation and voxel dosimetry in radioembolization using a unified deep learning framework,” *EJNMMI Phys.*, vol. 10, p. 82, 2023.
- [237] M. Gao, J. A. Fessler, and H.-P. Chan, “Model-based deep CNN-regularized reconstruction for digital breast tomosynthesis with a task-based CNN image assessment approach,” *Phys. Med. Biol.*, vol. 68, no. 24, p. 245 024, Dec. 2023.
- [236] H. Lim, Y. K. Dewaraja, and J. A. Fessler, “SPECT reconstruction with a trained regularizer using CT-side information: Application to <sup>177</sup>Lu SPECT imaging,” *IEEE Trans. Computational Imaging*, vol. 9, 846–56, 2023.
- [235] H. Kim, Z. Li, J. Son, J. A. Fessler, Y. K. Dewaraja, and S. Y. Chun, “Physics-guided deep scatter estimation by weak supervision for quantitative SPECT,” *IEEE Trans. Med. Imag.*, vol. 42, no. 10, 2961–73, Oct. 2023.



- [234] G. Wang, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, “Stochastic optimization of 3D non-Cartesian sampling trajectory (SNOPY),” *Mag. Res. Med.*, vol. 90, no. 2, 417–31, Aug. 2023.
- [233] D. Hong, J. A. Fessler, and L. Balzano, “Optimally weighted PCA for high-dimensional heteroscedastic data,” *SIAM J. Math. of Data Sci.*, vol. 5, no. 1, 222–50, 2023.
- [232] I. Y. Chun, Z. Huang, H. Lim, and J. A. Fessler, “Momentum-Net: Fast and convergent iterative neural network for inverse problems,” *IEEE Trans. Patt. Anal. Mach. Int.*, vol. 45, no. 4, 4915–31, Apr. 2023.
- [231] Z. Li, Y. K. Dewaraja, and J. A. Fessler, “Training end-to-end unrolled iterative neural networks for SPECT image reconstruction,” *IEEE Trans. Radiation and Plasma Med. Sci.*, vol. 7, no. 4, 410–23, Apr. 2023.
- [230] G. Wang and J. A. Fessler, “Efficient approximation of Jacobian matrices involving a non-uniform fast Fourier transform (NUFFT),” *IEEE Trans. Computational Imaging*, vol. 9, 43–54, 2023.
- [229] A. Lahiri, M. L. Klasky, J. A. Fessler, and S. Ravishankar, “Sparse-view cone beam CT reconstruction using data-consistent supervised and adversarial learning from scarce training data,” *IEEE Trans. Computational Imaging*, vol. 9, 13–28, 2023.
- [228] Z. Huang, J. A. Fessler, and T. B. Norris, “Focal stack camera: Depth estimation performance comparison and design exploration,” *Optics Continuum*, vol. 1, no. 9, 2030–42, 2022.
- [227] Z. Li, K. Lange, and J. A. Fessler, “Poisson phase retrieval in very low-count regimes,” *IEEE Trans. Computational Imaging*, vol. 8, 838–50, 2022.
- [226] G. Wang, T. Luo, J.-F. Nielsen, D. C. Noll, and J. A. Fessler, “B-spline parameterized joint optimization of reconstruction and k-space trajectories (BJORK) for accelerated 2D MRI,” *IEEE Trans. Med. Imag.*, vol. 41, no. 9, 2318–30, Sep. 2022.
- [225] D. Shy, J. A. Fessler, J. C. Polf, and Z. He, “Cramér-Rao bound evaluations of Compton imager designs for proton beam range verification,” *IEEE Trans. Radiation and Plasma Med. Sci.*, vol. 6, no. 6, 731–9, Jul. 2022.
- [224] C. Martinez, J. A. Fessler, M. Desco, and M. Abella, “Simple beam-hardening correction method (2DCalBH) based on 2D linearization,” *Phys. Med. Biol.*, vol. 67, no. 11, p. 115 005, May 2022.
- [223] C. Crockett and J. A. Fessler, “Bilevel methods for image reconstruction,” *Found. & Trends in Sig. Pro.*, vol. 15, no. 2-3, 121–289, 2022.
- [222] Z. Huang, J. A. Fessler, and T. B. Norris, “Focal stack based image forgery localization,” *Appl. Optics*, vol. 61, no. 14, 4030–9, May 2022.
- [221] V. E. Nwadeyi, J. A. Fessler, and Z. He, “Region of interest image reconstruction for Compton imaging using 3D position sensing CdZnTe,” *IEEE Trans. Nuc. Sci.*, vol. 69, no. 4, 965–75, Apr. 2022.
- [220] R. Zeng, C. Y. Lin, Q. Li, J. Lu, M. Skopec, J. A. Fessler, and K. J. Myers, “Performance of a deep learning-based CT image denoising method: Generalizability over dose, reconstruction kernel and slice thickness,” *Med. Phys.*, vol. 49, no. 2, 836–53, Feb. 2022.
- [219] Z. Li, J. A. Fessler, J. K. Mikell, S. J. Wilderman, and Y. K. Dewaraja, “DblurDoseNet: A deep residual learning network for voxel radionuclide dosimetry compensating for SPECT imaging resolution,” *Med. Phys.*, vol. 49, no. 2, 1216–30, Feb. 2022.
- [218] J. Schwartz, Z. W. Di, Y. Jiang, A. Fielitz, D.-H. Ha, S. D. Perera, I. E. Baggari, R. D. Robinson, J. A. Fessler, C. Ophus, S. Rozeveld, and R. Hovden, “Imaging atomic-scale chemistry from fused multi-modal electron microscopy,” *npj Computational Materials*, vol. 8, p. 16, Jan. 2022.
- [217] T. Luo, D. C. Noll, J. A. Fessler, and J.-F. Nielsen, “Joint design of RF and gradient waveforms via auto-differentiation for 3D tailored excitation in MRI,” *IEEE Trans. Med. Imag.*, vol. 40, no. 12, 3305–14, Dec. 2021.

- [216] A. Lahiri, G. Wang, S. Ravishankar, and J. A. Fessler, “Blind primed supervised (BLIPS) learning for MR image reconstruction,” *IEEE Trans. Med. Imag.*, vol. 40, no. 11, 3113–24, Nov. 2021.
- [215] D. Hong, K. Gilman, L. Balzano, and J. A. Fessler, “HePPCAT: probabilistic PCA for data with heteroscedastic noise,” *IEEE Trans. Sig. Proc.*, vol. 69, 4819–34, Aug. 2021.
- [214] M. Gao, J. A. Fessler, and H.-P. Chan, “Deep convolutional neural network with adversarial training for denoising for digital breast tomosynthesis images,” *IEEE Trans. Med. Imag.*, vol. 40, no. 7, 1805–16, Jul. 2021.
- [213] D. Kim and J. A. Fessler, “Optimizing the efficiency of first-order methods for decreasing the gradient of smooth convex functions,” *J. Optim. Theory Appl.*, vol. 188, 192–219, 2021.
- [212] D. Zhang, Z. Xu, Z. Huang, A. R. Gutierrez, C. J. Blocker, C.-H. Liu, M.-B. Lien, G. Cheng, Z. Liu, I. Y. Chun, J. A. Fessler, Z. Zhong, and T. B. Norris, “Neural network based 3D tracking with a graphene transparent focal stack imaging system,” *Nature Comm.*, vol. 12, p. 2413, Apr. 2021.
- [211] N. P. Shah, P. M. J. A. Fessler, D. L. Chichester, and D. K. Wehe, “Improved localization precision and angular resolution of a cylindrical, time-encoded imaging system from adaptive detector movements,” *IEEE Trans. Nuc. Sci.*, vol. 68, no. 4, 410–25, Apr. 2021.
- [210] D. Shy, Z. Chen, J. A. Fessler, and Z. He, “Filtered backprojection in Compton imaging using a spherical harmonic Wiener filter with pixelated CdZnTe,” *IEEE Trans. Nuc. Sci.*, vol. 68, no. 2, 211–9, Feb. 2021.
- [209] S. Guo, J. A. Fessler, and D. C. Noll, “High-resolution oscillating steady-state fMRI using patch-tensor low-rank reconstruction,” *IEEE Trans. Med. Imag.*, vol. 39, no. 12, 4357–68, Dec. 2020.
- [208] C. Y. Lin and J. A. Fessler, “Efficient regularized field map estimation in 3D MRI,” *IEEE Trans. Computational Imaging*, vol. 6, 1451–8, 2020.
- [207] H. Lim, I. Y. Chun, Y. K. Dewaraja, and J. A. Fessler, “Improved low-count quantitative PET reconstruction with a variational neural network,” *IEEE Trans. Med. Imag.*, vol. 39, no. 11, 3512–22, Nov. 2020.
- [206] S. T. Whitaker, G. Nataraj, J.-F. Nielsen, and J. A. Fessler, “Myelin water fraction estimation using small-tip fast recovery MRI,” *Mag. Res. Med.*, vol. 84, no. 4, 1977–90, Oct. 2020.
- [205] H. Xiang, H. Lim, J. A. Fessler, and Y. Dewaraja, “A deep neural network for fast and accurate scatter estimation in quantitative SPECT/CT under challenging scatter conditions,” *Eur. J. Nuc. Med. Mol. Im.*, vol. 47, 2956–67, May 2020.
- [204] S. Y. Chun, M. P. Nguyen, T. Q. Phan, H. Kim, J. A. Fessler, and Y. K. Dewaraja, “Algorithms and analyses for joint spectral image reconstruction in Y-90 bremsstrahlung SPECT,” *IEEE Trans. Med. Imag.*, vol. 39, no. 5, 1369–79, May 2020.
- [203] A. Lahiri, J. A. Fessler, and L. Hernandez-Garcia, “Optimizing MRF-ASL scan design for precise quantification of brain hemodynamics using neural network regression,” *Mag. Res. Med.*, vol. 83, no. 6, 1979–91, Jun. 2020.
- [202] Z. Li, S. Ravishankar, Y. Long, and J. A. Fessler, “DECT-MULTRA: dual-energy CT image decomposition with learned mixed material models and efficient clustering,” *IEEE Trans. Med. Imag.*, vol. 39, no. 4, 1223–34, Apr. 2020.
- [201] S. Ye, S. Ravishankar, Y. Long, and J. A. Fessler, “SPULTRA: low-dose CT image reconstruction with joint statistical and learned image models,” *IEEE Trans. Med. Imag.*, vol. 39, no. 3, 729–41, Mar. 2020.
- [200] B. E. Moore, S. Ravishankar, R. R. Nadakuditi, and J. A. Fessler, “Online adaptive image reconstruction using (OnAIR) using dictionary models,” *IEEE Trans. Computational Imaging*, vol. 6, 153–66, 2020.

- [199] M.-B. Lien, C.-H. Liu, I. Y. Chun, S. Ravishankar, H. Nien, M. Zhou, J. A. Fessler, Z. Zhong, and T. B. Norris, “Ranging and light field imaging with transparent photodetectors,” *Nature Photonics*, vol. 14, 143–8, Jan. 2020.
- [198] J. A. Fessler, “Optimization methods for MR image reconstruction,” *IEEE Sig. Proc. Mag.*, vol. 37, no. 1, 33–40, Jan. 2020.
- [197] I. Y. Chun and J. A. Fessler, “Convolutional analysis operator learning: Acceleration and convergence,” *IEEE Trans. Im. Proc.*, vol. 29, no. 1, 2108–22, Jan. 2020.
- [196] M. Abella, C. Martinez, M. Desco, J. J. Vaquero, and J. A. Fessler, “Simplified statistical image reconstruction for X-ray CT with beam-hardening artifact compensation,” *IEEE Trans. Med. Imag.*, vol. 39, no. 1, 111–18, Jan. 2020.
- [195] S. Ravishankar, J. C. Ye, and J. A. Fessler, “Image reconstruction: From sparsity to data-adaptive methods and machine learning,” *Proc. IEEE*, vol. 108, no. 1, 86–109, Jan. 2020.
- [194] J. Zheng, J. A. Fessler, and H.-P. Chan, “Effect of source blur on digital breast tomosynthesis reconstruction,” *Med. Phys.*, vol. 46, no. 12, 5572–92, Dec. 2019.
- [193] I. Y. Chun, D. Hong, B. Adcock, and J. A. Fessler, “Convolutional analysis operator learning: Dependence on training data,” *IEEE Signal Proc. Letters*, vol. 26, no. 8, 1137–41, Aug. 2019.
- [192] T. Luo, D. C. Noll, J. A. Fessler, and J.-F. Nielsen, “A GRAPPA algorithm for arbitrary 2D/3D non-Cartesian sampling trajectories with rapid calibration,” *Mag. Res. Med.*, vol. 82, no. 3, 1101–12, Sep. 2019.
- [191] D. S. Weller, D. C. Noll, and J. A. Fessler, “Real-time filtering with sparse variations for head motion in magnetic resonance imaging,” *Signal Processing*, vol. 157, 170–9, Apr. 2019.
- [190] C. Y. Lin and J. A. Fessler, “Efficient dynamic parallel MRI reconstruction for the low-rank plus sparse model,” *IEEE Trans. Computational Imaging*, vol. 5, no. 1, 17–26, Mar. 2019.
- [189] K. Kim, D. Kim, G. E. Fakhri, J. A. Fessler, and Q. Li, “Time of flight PET reconstruction using non-uniform update for regional recovery uniformity,” *Med. Phys.*, vol. 46, no. 2, 649–64, Feb. 2019.
- [188] G. Nataraj, J.-F. Nielsen, C. D. Scott, and J. A. Fessler, “Dictionary-free MRI PERK: Parameter estimation via regression with kernels,” *IEEE Trans. Med. Imag.*, vol. 37, no. 9, 2103–14, Sep. 2018.
- [187] D. Hong, L. Balzano, and J. A. Fessler, “Asymptotic performance of PCA for high-dimensional heteroscedastic data,” *J. Multivar. Anal.*, vol. 167, 435–52, Sep. 2018.
- [186] D. Kim and J. A. Fessler, “Adaptive restart of the optimized gradient method for convex optimization,” *J. Optim. Theory Appl.*, vol. 178, no. 1, 240–63, Jul. 2018.
- [185] X. Zheng, S. Ravishankar, Y. Long, and J. A. Fessler, “PWLS-ULTRA: An efficient clustering and learning-based approach for low-dose 3D CT image reconstruction,” *IEEE Trans. Med. Imag.*, vol. 37, no. 6, 1498–510, Jun. 2018.
- [184] H. Lim, J. A. Fessler, S. J. Wilderman, A. F. Brooks, and Y. K. Dewaraja, “Y-90 SPECT ML image reconstruction with a new model for tissue-dependent bremsstrahlung production: A proof-of-concept study,” *Phys. Med. Biol.*, vol. 63, no. 11, p. 115 001, Jun. 2018.
- [183] D. Kim and J. A. Fessler, “Generalizing the optimized gradient method for smooth convex minimization,” *SIAM J. Optim.*, vol. 28, no. 2, 1920–50, 2018.
- [182] D. Kim and J. A. Fessler, “Another look at the Fast Iterative Shrinkage/Thresholding Algorithm (FISTA),” *SIAM J. Optim.*, vol. 28, no. 1, 223–50, 2018.

- [181] I. Y. Chun and J. A. Fessler, "Convolutional dictionary learning: Acceleration and convergence," *IEEE Trans. Im. Proc.*, vol. 27, no. 4, 1697–712, Apr. 2018.
- [180] S. Yoon, S. A. Maäkiharju, J. A. Fessler, and S. L. Ceccio, "Image reconstruction for limited angle electron beam X-ray computed tomography with energy-integrating detectors for multiphase flows," *IEEE Trans. Computational Imaging*, vol. 4, no. 1, 112–24, Mar. 2018.
- [179] S. N. Williams, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, "Design of spectral-spatial phase prewinding pulses and their use in small-tip fast recovery steady-state imaging," *Mag. Res. Med.*, vol. 79, no. 3, 1377–86, Mar. 2018.
- [178] V. T. Olafsson, D. C. Noll, and J. A. Fessler, "Fast spatial resolution analysis of quadratic penalized least-squares image reconstruction with separate real and imaginary roughness penalty: Application to MRI," *IEEE Trans. Med. Imag.*, vol. 37, no. 2, 604–14, Feb. 2018.
- [177] H. Lim, Y. K. Dewaraja, and J. A. Fessler, "A PET reconstruction formulation that enforces non-negativity in projection space for bias reduction in Y-90 imaging," *Phys. Med. Biol.*, vol. 63, no. 3, p. 035 042, Feb. 2018.
- [176] J. Zheng, J. A. Fessler, and H.-P. Chan, "Detector blur and correlated noise modeling for digital breast tomosynthesis reconstruction," *IEEE Trans. Med. Imag.*, vol. 37, no. 1, 116–27, Jan. 2018.
- [175] Y. K. Dewaraja, S. Y. Chun, R. N. Srinivasa, R. K. Kaza, K. C. Cuneo, B. S. Majdalany, P. M. Novelli, M. Ljungberg, and J. A. Fessler, "Improved quantitative Y-90 bremsstrahlung SPECT reconstruction with Monte Carlo scatter modeling," *Med. Phys.*, vol. 44, no. 12, 6364–76, Dec. 2017.
- [174] Y. C. Eldar, A. O. Hero, L. Deng, J. A. Fessler, J. Kovacevic, H. V. Poor, and S. Young, "Challenges and open problems in signal processing: Panel discussion summary from ICASSP 2017," *IEEE Sig. Proc. Mag.*, vol. 34, no. 6, 8–23, Nov. 2017.
- [173] S. Ravishankar, R. R. Nadakuditi, and J. A. Fessler, "Efficient sum of outer products dictionary learning (SOUP-DIL) and its application to inverse problems," *IEEE Trans. Computational Imaging*, vol. 3, no. 4, 694–709, Dec. 2017.
- [172] S. Ravishankar, B. E. Moore, R. R. Nadakuditi, and J. A. Fessler, "Low-rank and adaptive sparse signal (LASSI) models for highly accelerated dynamic imaging," *IEEE Trans. Med. Imag.*, vol. 36, no. 5, 1116–28, May 2017.
- [171] L. Liu, S. Jolly, Y. Cao, K. Vineberg, J. A. Fessler, and J. M. Balter, "Female pelvic synthetic CT generation based on joint intensity and shape analysis," *Phys. Med. Biol.*, vol. 62, no. 8, 2935–49, Apr. 2017.
- [170] J. Zheng, J. A. Fessler, and H.-P. Chan, "Segmented separable footprint projector for digital breast tomosynthesis and its application for subpixel reconstruction," *Med. Phys.*, vol. 44, no. 3, 986–1001, Mar. 2017.
- [169] G. Nataraj, J.-F. Nielsen, and J. A. Fessler, "Optimizing MR scan design for model-based T1, T2 estimation from steady-state sequences," *IEEE Trans. Med. Imag.*, vol. 36, no. 2, 467–77, Feb. 2017.
- [168] M. Le and J. A. Fessler, "Efficient, convergent SENSE MRI reconstruction for non-periodic boundary conditions via tridiagonal solvers," *IEEE Trans. Computational Imaging*, vol. 3, no. 1, 11–21, Mar. 2017.
- [167] D. Kim and J. A. Fessler, "On the convergence analysis of the optimized gradient methods," *J. Optim. Theory Appl.*, vol. 172, no. 1, 187–205, Jan. 2017.
- [166] S. M. Schmitt, M. M. Goodsitt, and J. A. Fessler, "Fast variance prediction for iteratively reconstructed CT images with locally quadratic regularization," *IEEE Trans. Med. Imag.*, vol. 36, no. 1, 17–26, Jan. 2017.
- [165] J. Chu, M. Streicher, J. A. Fessler, and Z. He, "Unbiased filtered back-projection in  $4\pi$  Compton imaging with 3D position sensitive detectors," *IEEE Trans. Nuc. Sci.*, vol. 63, no. 6, 2750–6, Dec. 2016.

- [164] M. A. Cauble, M. J. Muckley, M. Fang, J. A. Fessler, K. Welch, E. D. Rothman, B. G. Orr, L. T. Duong, and M. M. B. Holl, "Estrogen depletion and drug treatment alter the microstructure of type I collagen in bone," *Bone Reports*, vol. 5, 243–51, Dec. 2016.
- [163] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Rapid inner-volume imaging in the steady-state with 3D selective excitation and small-tip fast recovery (STFR) imaging," *Mag. Res. Med.*, vol. 76, no. 4, 1217–23, Oct. 2016.
- [162] D. Kim and J. A. Fessler, "Optimized first-order methods for smooth convex minimization," *Mathematical Programming*, vol. 159, no. 1, 81–107, Sep. 2016.
- [161] H. Nien and J. A. Fessler, "Relaxed linearized algorithms for faster X-ray CT image reconstruction," *IEEE Trans. Med. Imag.*, vol. 35, no. 4, 1090–8, Apr. 2016.
- [160] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Joint design of excitation k-space trajectory and RF pulse for small-tip 3D tailored excitation in MRI," *IEEE Trans. Med. Imag.*, vol. 35, no. 2, 468–79, Feb. 2016.
- [159] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Balanced SSFP-like steady-state imaging using small-tip fast recovery sequence with a spectral pre-winding pulse," *Mag. Res. Med.*, vol. 75, no. 2, 839–44, Feb. 2016.
- [158] L. Liu, Y. Cao, J. A. Fessler, and J. Balter, "A female pelvic bone shape model for air/bone separation in support of synthetic CT generation for radiation therapy," *Phys. Med. Biol.*, vol. 61, no. 1, 169–82, Jan. 2016.
- [157] D. S. Weller, A. Pnueli, G. Divon, O. Radzyner, Y. C. Eldar, and J. A. Fessler, "Undersampled phase retrieval with outliers," *IEEE Trans. Computational Imaging*, vol. 1, no. 4, 247–58, Dec. 2015.
- [156] M. McGaffin and J. A. Fessler, "Alternating dual updates algorithm for X-ray CT reconstruction on the GPU," *IEEE Trans. Computational Imaging*, vol. 1, no. 3, 186–99, Sep. 2015.
- [155] F. Zhao, J.-F. Nielsen, S. D. Swanson, J. A. Fessler, and D. C. Noll, "Simultaneous fat saturation and magnetization transfer contrast imaging with steady-state incoherent sequences," *Mag. Res. Med.*, vol. 74, no. 3, 739–46, Sep. 2015.
- [154] M. McGaffin and J. A. Fessler, "Edge-preserving image denoising via group coordinate descent on the GPU," *IEEE Trans. Im. Proc.*, vol. 24, no. 4, 1273–81, Apr. 2015.
- [153] J. Gregor and J. A. Fessler, "Comparison of SIRT and SQS for regularized weighted least squares image reconstruction," *IEEE Trans. Computational Imaging*, vol. 1, no. 1, 44–55, Mar. 2015.
- [152] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Steady-state functional MRI using spoiled small-tip fast recovery (STFR) imaging," *Mag. Res. Med.*, vol. 73, no. 2, 536–43, Feb. 2015.
- [151] J. H. Cho and J. A. Fessler, "Regularization designs for uniform spatial resolution and noise properties in statistical image reconstruction for 3D X-ray CT," *IEEE Trans. Med. Imag.*, vol. 34, no. 2, 678–89, Feb. 2015.
- [150] H. Nien and J. A. Fessler, "Fast X-ray CT image reconstruction using a linearized augmented Lagrangian method with ordered subsets," *IEEE Trans. Med. Imag.*, vol. 34, no. 2, 388–99, Feb. 2015.
- [149] M. J. Muckley, D. C. Noll, and J. A. Fessler, "Fast parallel MR image reconstruction via B1-based, adaptive restart, iterative soft thresholding algorithms (BARISTA)," *IEEE Trans. Med. Imag.*, vol. 34, no. 2, 578–88, Feb. 2015.
- [148] D. Kim, S. Ramani, and J. A. Fessler, "Combining ordered subsets and momentum for accelerated X-ray CT image reconstruction," *IEEE Trans. Med. Imag.*, vol. 34, no. 1, 167–78, Jan. 2015.
- [147] F. Zhao, J. A. Fessler, S. M. Wright, and D. C. Noll, "Regularized estimation of magnitude and phase of multi-coil B1 field via Bloch-Siegert B1 mapping and coil combination optimizations," *IEEE Trans. Med. Imag.*, vol. 33, no. 10, 2020–30, Oct. 2014.

- [146] S. Y. Chun, Y. K. Dewaraja, and J. A. Fessler, "Alternating direction method of multiplier for tomography with non-local regularizers," *IEEE Trans. Med. Imag.*, vol. 33, no. 10, 1960–8, Oct. 2014.
- [145] Y. Long and J. A. Fessler, "Multi-material decomposition using statistical image reconstruction for spectral CT," *IEEE Trans. Med. Imag.*, vol. 33, no. 8, 1614–26, Aug. 2014.
- [144] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Strategies for improved 3D small-tip fast recovery (STFR) imaging," *Mag. Res. Med.*, vol. 72, no. 2, 389–98, Aug. 2014.
- [143] D. S. Weller, S. Ramani, J.-F. Nielsen, and J. A. Fessler, "Monte Carlo SURE-based parameter selection for parallel magnetic resonance imaging reconstruction," *Mag. Res. Med.*, vol. 71, no. 5, 1760–70, May 2014.
- [142] D. Weller, S. Ramani, and J. A. Fessler, "Augmented Lagrangian with variable splitting for faster non-Cartesian L1-SPIRiT MR image reconstruction," *IEEE Trans. Med. Imag.*, vol. 33, no. 2, 351–61, Feb. 2014.
- [141] D. Kim, D. Pal, J.-B. Thibault, and J. A. Fessler, "Accelerating ordered subsets image reconstruction for X-ray CT using spatially non-uniform optimization transfer," *IEEE Trans. Med. Imag.*, vol. 32, no. 11, 1965–78, Nov. 2013.
- [140] J. M. Jaworski, C. G. Wahl, W. Wang, J. A. Fessler, and Z. He, "Model-based reconstruction of spectral and spatial source distribution for objects with known motion," *IEEE Trans. Nuc. Sci.*, vol. 60, no. 5, 3981–9, Oct. 2013.
- [139] S. Y. Chun, J. A. Fessler, and Y. K. Dewaraja, "Post-reconstruction non-local means filtering methods using CT side information for quantitative SPECT," *Phys. Med. Biol.*, vol. 58, no. 17, 6225–40, Sep. 2013.
- [138] S. Ramani, D. S. Weller, J.-F. Nielsen, and J. A. Fessler, "Non-Cartesian MRI reconstruction with automatic regularization via Monte-Carlo SURE," *IEEE Trans. Med. Imag.*, vol. 32, no. 8, 1411–22, Aug. 2013.
- [137] J. Nuyts, B. De Man, J. A. Fessler, W. Zbijewski, and F. J. Beekman, "Modelling the physics in iterative reconstruction for transmission computed tomography," *Phys. Med. Biol.*, vol. 58, no. 12, R63–96, Jun. 2013.
- [136] A. Matakos, S. Ramani, and J. A. Fessler, "Accelerated edge-preserving image restoration without boundary artifacts," *IEEE Trans. Im. Proc.*, vol. 22, no. 5, 2019–29, May 2013.
- [135] M. J. Allison, S. Ramani, and J. A. Fessler, "Accelerated regularized estimation of MR coil sensitivities using augmented Lagrangian methods," *IEEE Trans. Med. Imag.*, vol. 32, no. 3, 556–64, Mar. 2013.
- [134] S. Y. Chun and J. A. Fessler, "Noise properties of motion-compensated tomographic image reconstruction methods," *IEEE Trans. Med. Imag.*, vol. 32, no. 2, 141–52, Feb. 2013.
- [133] S. Y. Chun, J. A. Fessler, and Y. K. Dewaraja, "Correction for collimator-detector response in SPECT using point spread function template," *IEEE Trans. Med. Imag.*, vol. 32, no. 2, 295–305, Feb. 2013.
- [132] D. J. Lingenfelter, J. A. Fessler, C. D. Scott, and Z. He, "Source detection performance prediction for a CdZnTe array," *IEEE Trans. Nuc. Sci.*, vol. 60, no. 1, 204–12, Feb. 2013.
- [131] J. K. Kim, J. A. Fessler, and Z. Zhang, "Forward-projection architecture for fast iterative image reconstruction in X-ray CT," *IEEE Trans. Sig. Proc.*, vol. 60, no. 10, 5508–18, Oct. 2012.
- [130] F. Zhao, D. Noll, J.-F. Nielsen, and J. A. Fessler, "Separate magnitude and phase regularization via compressed sensing," *IEEE Trans. Med. Imag.*, vol. 31, no. 9, 1713–23, Sep. 2012.
- [129] S. Y. Chun and J. A. Fessler, "Spatial resolution properties of motion-compensated image reconstruction methods," *IEEE Trans. Med. Imag.*, vol. 31, no. 7, 1413–25, Jul. 2012.
- [128] S. Ramani, Z. Liu, J. Rosen, J.-F. Nielsen, and J. A. Fessler, "Regularization parameter selection for nonlinear iterative image restoration and MRI reconstruction using GCV and SURE-based methods," *IEEE Trans. Im. Proc.*, vol. 21, no. 8, 3659–72, Aug. 2012.

- [127] D. Yoon, J. A. Fessler, A. C. Gilbert, and D. C. Noll, “Fast joint design method for parallel excitation RF pulse and gradient waveforms considering off-resonance,” *Mag. Res. Med.*, vol. 68, no. 1, 278–85, Jul. 2012.
- [126] S. Ramani and J. A. Fessler, “A splitting-based iterative algorithm for accelerated statistical X-ray CT reconstruction,” *IEEE Trans. Med. Imag.*, vol. 31, no. 3, 677–88, Mar. 2012.
- [125] D. J. Lingenfelter, J. A. Fessler, C. D. Scott, and Z. He, “Asymptotic source detection performance of gamma-ray imaging systems under model mismatch,” *IEEE Trans. Sig. Proc.*, vol. 59, no. 11, 5141–51, Nov. 2011.
- [124] C. Kublik, S. Esedoglu, and J. A. Fessler, “Algorithms for area preserving flows,” *SIAM J. Sci. Comp.*, vol. 33, no. 5, 2382–401, 2011.
- [123] X. He, J. A. Fessler, L. Cheng, and E. C. Frey, “Regularized image reconstruction algorithms for dual-isotope myocardial perfusion SPECT (MPS) imaging using a cross-tracer edge-preserving prior,” *IEEE Trans. Med. Imag.*, vol. 30, no. 6, 1169–83, Jun. 2011.
- [122] S. Ramani and J. A. Fessler, “Parallel MR image reconstruction using augmented Lagrangian methods,” *IEEE Trans. Med. Imag.*, vol. 30, no. 3, 694–706, Mar. 2011.
- [121] Y. Long, J. A. Fessler, and J. M. Balter, “3D forward and back-projection for X-ray CT using separable footprints,” *IEEE Trans. Med. Imag.*, vol. 29, no. 11, 1839–50, Nov. 2010.
- [120] D. J. Lingenfelter, J. A. Fessler, C. D. Scott, and Z. He, “Benefits of position-sensitive detectors for radioactive source detection,” *IEEE Trans. Sig. Proc.*, vol. 58, no. 9, 4473–83, Sep. 2010.
- [119] J. A. Fessler, “Model-based image reconstruction for MRI,” *IEEE Sig. Proc. Mag.*, vol. 27, no. 4, 81–9, Jul. 2010, Invited submission to special issue on medical imaging.
- [118] Y. Long, J. A. Fessler, and J. M. Balter, “Accuracy estimation for projection-to-volume targeting during rotational therapy: A feasibility study,” *Med. Phys.*, vol. 37, no. 6, 2480–90, Jun. 2010.
- [117] J. R. Valenzuela, J. A. Fessler, and R. P. Paxman, “Joint estimation of Stokes images and aberrations from phase-diverse polarimetric measurements,” *J. Opt. Soc. Am. A*, vol. 27, no. 5, 1185–93, May 2010.
- [116] Y. K. Dewaraja, K. F. Koral, and J. A. Fessler, “Regularized reconstruction in quantitative SPECT using CT side information from hybrid imaging,” *Phys. Med. Biol.*, vol. 55, no. 9, 2523–9, May 2010.
- [115] B. R. Kowash, D. K. Wehe, and J. A. Fessler, “A rotating modulation imager for locating mid-range point sources,” *Nucl. Instr. Meth. Phys. Res. A*, vol. 602, no. 2, 477–83, Apr. 2009.
- [114] J. Noh, J. A. Fessler, and P. E. Kinahan, “Statistical sinogram restoration in dual-energy CT for PET attenuation correction,” *IEEE Trans. Med. Imag.*, vol. 28, no. 11, 1688–702, Nov. 2009.
- [113] W. A. Grissom, D. Xu, A. B. Kerr, J. A. Fessler, and D. C. Noll, “Fast large-tip-angle multidimensional and parallel RF pulse design in MRI,” *IEEE Trans. Med. Imag.*, vol. 28, no. 10, 1548–59, Oct. 2009.
- [112] R. Bhagalia, J. A. Fessler, and B. Kim, “Accelerated nonrigid intensity-based image registration using importance sampling,” *IEEE Trans. Med. Imag.*, vol. 28, no. 8, 1208–16, Aug. 2009.
- [111] D. Ruan, J. A. Fessler, J. M. Balter, and P. J. Keall, “Real-time profiling of respiratory motion: Baseline drift, frequency variation and fundamental pattern change,” *Phys. Med. Biol.*, vol. 54, no. 15, 4777–92, Aug. 2009.
- [110] M. A. Musheinesh, C. J. Divin, J. A. Fessler, and T. B. Norris, “Time-reversal and model-based imaging in a THz waveguide,” *Optics Express*, vol. 17, no. 16, 13663–70, Aug. 2009.
- [109] A. Joshi, R. A. Koeppe, J. A. Fessler, and M. Kilbourn, “Signal separation and parameter estimation in non invasive dual-tracer PET scans using reference region approaches,” *J. Cerebral Blood Flow and Metabolism*, vol. 29, no. 7, 1346–57, Jul. 2009.

- [108] A. D. Joshi, R. A. Koeppe, and J. A. Fessler, "Reducing between scanner differences in multi-center PET studies," *NeuroImage*, vol. 49, no. 1, 154–9, May 2009.
- [107] H. R. Shi and J. A. Fessler, "Quadratic regularization design for 2D CT," *IEEE Trans. Med. Imag.*, vol. 28, no. 5, 645–56, May 2009.
- [106] C. Yip, D. Yoon, V. Olafsson, S. Lee, W. A. Grissom, J. A. Fessler, and D. C. Noll, "Spectral-spatial pulse design for through-plane phase precompensatory slice selection in T2\*-weighted functional MRI," *Mag. Res. Med.*, vol. 61, no. 5, 1137–47, May 2009.
- [105] J. Valenzuela and J. A. Fessler, "Joint reconstruction of Stokes images from polarimetric measurements," *J. Opt. Soc. Am. A*, vol. 26, no. 4, 962–8, Apr. 2009.
- [104] S. Y. Chun and J. A. Fessler, "A simple regularizer for B-spline nonrigid image registration that encourages local invertibility," *IEEE J. Sel. Top. Sig. Proc.*, vol. 3, no. 1, 159–69, Feb. 2009, Special Issue on Digital Image Processing Techniques for Oncology.
- [103] A. K. Funai, J. A. Fessler, D. T. B. Yeo, V. T. Olafsson, and D. C. Noll, "Regularized field map estimation in MRI," *IEEE Trans. Med. Imag.*, vol. 27, no. 10, 1484–94, Oct. 2008.
- [102] V. T. Olafsson, D. C. Noll, and J. A. Fessler, "Fast joint reconstruction of dynamic  $R_2^*$  and field maps in functional MRI," *IEEE Trans. Med. Imag.*, vol. 27, no. 9, 1177–88, Sep. 2008.
- [101] D. T. B. Yeo, J. A. Fessler, and B. Kim, "Concurrent correction of geometric distortion and motion using the map-slice-to-volume method in EPI," *Mag. Res. Im.*, vol. 26, no. 5, 703–14, Jun. 2008.
- [100] D. Ruan, J. A. Fessler, J. M. Balter, R. I. Berbeco, S. Nishioka, and H. Shirato, "Inference of hysteretic respiratory tumour motion from external surrogates: A state augmentation approach," *Phys. Med. Biol.*, vol. 53, no. 11, 2923–36, Jun. 2008.
- [99] A. Joshi, J. A. Fessler, and R. A. Koeppe, "Improving PET receptor binding estimates from Logan plots using principal component analysis," *J. Cerebral Blood Flow and Metabolism*, vol. 28, no. 4, 852–65, Apr. 2008.
- [98] W. A. Grissom, C. Yip, S. M. Wright, J. A. Fessler, and D. C. Noll, "Additive angle method for fast large-tip-angle RF pulse design in parallel excitation," *Mag. Res. Med.*, vol. 59, no. 4, 779–87, Apr. 2008.
- [97] R. Zeng, J. A. Fessler, J. M. Balter, and P. A. Balter, "Iterative sorting for four-dimensional CT images based on internal anatomy motion," *Med. Phys.*, vol. 35, no. 3, 917–26, Mar. 2008.
- [96] D. Ruan, J. A. Fessler, and J. M. Balter, "Mean position tracking of respiratory motion," *Med. Phys.*, vol. 35, no. 2, 782–92, Feb. 2008.
- [95] D. Ruan, J. A. Fessler, and J. M. Balter, "Real-time prediction of respiratory motion based on nonparametric local regression methods," *Phys. Med. Biol.*, vol. 52, no. 23, 7137–52, Dec. 2007.
- [94] D. T. B. Yeo, T. L. Chenevert, J. A. Fessler, and B. Kim, "Zero and first-order phase shift correction for field map estimation with dual-echo GRE using bipolar gradients," *Mag. Res. Im.*, vol. 25, no. 9, 1263–71, Nov. 2007.
- [93] J. A. Fessler, "On NUFFT-based gridding for non-Cartesian MRI," *J. Mag. Res.*, vol. 188, no. 2, 191–5, Oct. 2007.
- [92] A. Yendiki and J. A. Fessler, "Analysis of observer performance in unknown-location tasks for tomographic image reconstruction," *J. Opt. Soc. Am. A*, vol. 24, no. 12, B99–109, Dec. 2007, Special issue on Image Quality.
- [91] M. W. Jacobson and J. A. Fessler, "An expanded theoretical treatment of iteration-dependent majorize-minimize algorithms," *IEEE Trans. Im. Proc.*, vol. 16, no. 10, 2411–22, Oct. 2007.



- [90] C. Yip, W. A. Grissom, J. A. Fessler, and D. C. Noll, "Joint design of trajectory and RF pulses for parallel excitation," *Mag. Res. Med.*, vol. 58, no. 3, 598–604, Sep. 2007.
- [89] K. F. Koral, J. N. Kritzman, V. E. Rogers, R. J. Ackermann, and J. A. Fessler, "Optimizing the number of equivalent iterations of 3D OSEM in SPECT reconstruction of I-131 focal activities," *Nucl. Instr. Meth. Phys. Res. A.*, vol. 579, no. 1, 326–9, Aug. 2007.
- [88] Y. Zhang-O'Connor and J. A. Fessler, "Fast predictions of variance images for fan-beam transmission tomography with quadratic regularization," *IEEE Trans. Med. Imag.*, vol. 26, no. 3, 335–46, Mar. 2007.
- [87] R. Zeng, J. A. Fessler, and J. M. Balter, "Estimating 3-D respiratory motion from orbiting views by tomographic image registration," *IEEE Trans. Med. Imag.*, vol. 26, no. 2, 153–63, Feb. 2007.
- [86] W. Grissom, C. Yip, Z. Zhang, V. A. Stenger, J. A. Fessler, and D. C. Noll, "Spatial domain method for the design of RF pulses in multi-coil parallel excitation," *Mag. Res. Med.*, vol. 56, no. 3, 620–9, Sep. 2006.
- [85] C. Yip, J. A. Fessler, and D. C. Noll, "Advanced three-dimensional tailored RF pulse for signal recovery in  $T_2^*$ -weighted functional magnetic resonance imaging," *Mag. Res. Med.*, vol. 56, no. 5, 1050–9, Nov. 2006.
- [84] P. E. Kinahan, A. M. Alessio, and J. A. Fessler, "Dual energy CT attenuation correction methods for quantitative assessment of response to cancer therapy with PET/CT imaging," *Technology in Cancer Research and Treatment*, vol. 5, no. 4, 319–28, Aug. 2006.
- [83] D. Ruan, J. A. Fessler, J. M. Balter, and J.-J. Sonke, "Exploring breathing pattern irregularity with projection-based method," *Med. Phys.*, vol. 33, no. 7, 2491–9, Jul. 2006.
- [82] B. Feng, J. A. Fessler, and M. A. King, "Incorporation of system resolution compensation (RC) in the ordered-subset transmission (OSTR) algorithm for transmission imaging in SPECT," *IEEE Trans. Med. Imag.*, vol. 25, no. 7, 941–9, Jul. 2006.
- [81] B. Feng, J. A. Fessler, P. H. Pretorius, R. D. Beach, G. L. Zeng, and M. A. King, "Evaluation of the ordered-subset transmission (OSTR) algorithm for transmission imaging on SPECT systems using axially overlapping cone-beams," *IEEE Trans. Nuc. Sci.*, vol. 53, no. 3, 1221–9, Jun. 2006.
- [80] M. Ting, A. O. Hero, D. Rugar, C. Yip, and J. A. Fessler, "Near optimal signal detection for finite state Markov signals with application to magnetic resonance force microscopy," *IEEE Trans. Sig. Proc.*, vol. 54, no. 6, 2049–62, Jun. 2006.
- [79] Y. Zhang-O'Connor and J. A. Fessler, "Fourier-based forward and back-projectors in iterative fan-beam tomographic image reconstruction," *IEEE Trans. Med. Imag.*, vol. 25, no. 5, 582–9, May 2006.
- [78] S. Ahn, J. A. Fessler, D. Blatt, and A. O. Hero, "Convergent incremental optimization transfer algorithms: Application to tomography," *IEEE Trans. Med. Imag.*, vol. 25, no. 3, 283–96, Mar. 2006.
- [77] Y. K. Dewaraja, M. Ljungberg, and J. A. Fessler, "3-D Monte Carlo-based scatter compensation in quantitative I-131 SPECT reconstruction," *IEEE Trans. Nuc. Sci.*, vol. 53, no. 1, 181–8, Feb. 2006.
- [76] A. Yendiki and J. A. Fessler, "Analysis of observer performance in known-location tasks for tomographic image reconstruction," *IEEE Trans. Med. Imag.*, vol. 25, no. 1, 28–41, Jan. 2006.
- [75] R. Narayanan, J. A. Fessler, H. Park, and C. R. Meyer, "Diffeomorphic nonlinear transformations: A local parametric approach for image registration," in *Information Processing in Medical Im.*, vol. LNCS 3565, 2005, 174–85.
- [74] C. Yip, J. A. Fessler, and D. C. Noll, "Iterative RF pulse design for multidimensional, small-tip-angle selective excitation," *Mag. Res. Med.*, vol. 54, no. 4, 908–17, Oct. 2005.
- [73] J. A. Fessler, S. Lee, V. T. Olafsson, H. R. Shi, and D. C. Noll, "Toeplitz-based iterative image reconstruction for MRI with correction for magnetic field inhomogeneity," *IEEE Trans. Sig. Proc.*, vol. 53, no. 9, 3393–402, Sep. 2005.

- [72] R. Zeng, J. A. Fessler, and J. M. Balter, "Respiratory motion estimation from slowly rotating X-ray projections: Theory and simulation," *Med. Phys.*, vol. 32, no. 4, 984–91, Apr. 2005.
- [71] D. C. Noll, J. A. Fessler, and B. P. Sutton, "Conjugate phase MRI reconstruction with spatially variant sample density correction," *IEEE Trans. Med. Imag.*, vol. 24, no. 3, 325–36, Mar. 2005.
- [70] J. W. Stayman and J. A. Fessler, "Efficient calculation of resolution and covariance for fully-3D SPECT," *IEEE Trans. Med. Imag.*, vol. 23, no. 12, 1543–56, Dec. 2004.
- [69] J. Kim and J. A. Fessler, "Intensity-based image registration using robust correlation coefficients," *IEEE Trans. Med. Imag.*, vol. 23, no. 11, 1430–44, Nov. 2004.
- [68] K. Lee, P. E. Kinahan, J. A. Fessler, R. S. Miyaoka, M. Janes, and T. K. Lewellen, "Pragmatic fully 3D image reconstruction for the MiCES mouse imaging PET scanner," *Phys. Med. Biol.*, vol. 49, no. 19, 4563–78, Oct. 2004.
- [67] K. F. Koral, A. Yendiki, Q. Lin, Y. K. Dewaraja, and J. A. Fessler, "Determining total I-131 activity within a VoI using SPECT, a UHE collimator, OSEM, and a constant conversion factor," *IEEE Trans. Nuc. Sci.*, vol. 51, no. 3, 611–8, Jun. 2004.
- [66] B. P. Sutton, D. C. Noll, and J. A. Fessler, "Dynamic field map estimation using a spiral-in / spiral-out acquisition," *Mag. Res. Med.*, vol. 51, no. 6, 1194–204, Jun. 2004.
- [65] A. Yendiki and J. A. Fessler, "A comparison of rotation- and blob-based system models for 3D SPECT with depth-dependent detector response," *Phys. Med. Biol.*, vol. 49, no. 11, 2157–68, Jun. 2004.
- [64] S. Soththivirat and J. A. Fessler, "Penalized-likelihood image reconstruction for digital holography," *J. Opt. Soc. Am. A*, vol. 21, no. 5, 737–50, May 2004.
- [63] S. Ahn and J. A. Fessler, "Emission image reconstruction for randoms-precorrected PET allowing negative sinogram values," *IEEE Trans. Med. Imag.*, vol. 23, no. 5, 591–601, May 2004.
- [62] S. Matej, J. A. Fessler, and I. G. Kazantsev, "Iterative tomographic image reconstruction using Fourier-based forward and back- projectors," *IEEE Trans. Med. Imag.*, vol. 23, no. 4, 401–12, Apr. 2004.
- [61] J. W. Stayman and J. A. Fessler, "Compensation for nonuniform resolution using penalized-likelihood reconstruction in space-variant imaging systems," *IEEE Trans. Med. Imag.*, vol. 23, no. 3, 269–84, Mar. 2004.
- [60] L. J. Meng, W. L. Rogers, N. H. Clinthorne, and J. A. Fessler, "Feasibility study of Compton scattering enhanced multiple pinhole imager for nuclear medicine," *IEEE Trans. Nuc. Sci.*, vol. 50, no. 5, 1609–17, Oct. 2003.
- [59] J. Nuyts and J. A. Fessler, "A penalized-likelihood image reconstruction method for emission tomography, compared to post-smoothed maximum-likelihood with matched spatial resolution," *IEEE Trans. Med. Imag.*, vol. 22, no. 9, 1042–52, Sep. 2003.
- [58] I. A. Elbakri and J. A. Fessler, "Segmentation-free statistical image reconstruction for polyenergetic X-ray computed tomography with experimental validation," *Phys. Med. Biol.*, vol. 48, no. 15, 2543–78, Aug. 2003.
- [57] S. Ahn and J. A. Fessler, "Globally convergent image reconstruction for emission tomography using relaxed ordered subsets algorithms," *IEEE Trans. Med. Imag.*, vol. 22, no. 5, 613–26, May 2003.
- [56] B. P. Sutton, D. C. Noll, and J. A. Fessler, "Fast, iterative image reconstruction for MRI in the presence of field inhomogeneities," *IEEE Trans. Med. Imag.*, vol. 22, no. 2, 178–88, Feb. 2003.
- [55] S. Soththivirat and J. A. Fessler, "Relaxed ordered-subsets algorithm for penalized-likelihood image restoration," *J. Opt. Soc. Am. A*, vol. 20, no. 3, 439–49, Mar. 2003.
- [54] J. A. Fessler and B. P. Sutton, "Nonuniform fast Fourier transforms using min-max interpolation," *IEEE Trans. Sig. Proc.*, vol. 51, no. 2, 560–74, Feb. 2003.

- [53] D. F. Yu and J. A. Fessler, "Mean and variance of coincidence photon counting with deadtime," *Nucl. Instr. Meth. Phys. Res. A.*, vol. 488, no. 1-2, 362–74, Aug. 2002.
- [52] S. Sotthivirat and J. A. Fessler, "Image recovery using partitioned-separable paraboloidal surrogate coordinate ascent algorithms," *IEEE Trans. Im. Proc.*, vol. 11, no. 3, 306–17, Mar. 2002.
- [51] D. F. Yu and J. A. Fessler, "Edge-preserving tomographic reconstruction with nonlocal regularization," *IEEE Trans. Med. Imag.*, vol. 21, no. 2, 159–73, Feb. 2002.
- [50] I. A. Elbakri and J. A. Fessler, "Statistical image reconstruction for polyenergetic X-ray computed tomography," *IEEE Trans. Med. Imag.*, vol. 21, no. 2, 89–99, Feb. 2002.
- [49] C. Comtat, P. E. Kinahan, J. A. Fessler, T. Beyer, D. W. Townsend, M. Defrise, and C. Michel, "Clinically feasible reconstruction of 3d whole-body PET/CT data using blurred anatomical labels," *Phys. Med. Biol.*, vol. 47, no. 1, 1–20, Jan. 2002.
- [48] J. Kim, J. A. Fessler, K. L. Lam, J. M. Balter, and R. K. Ten Haken, "A feasibility study of mutual information based set-up error estimator for radiotherapy," *Med. Phys.*, vol. 28, no. 12, 2507–17, Dec. 2001.
- [47] S. J. Wilderman, J. A. Fessler, N. H. Clinthorne, J. W. LeBlanc, and W. L. Rogers, "Improved modeling of system response in list mode EM reconstruction of Compton scatter camera images," *IEEE Trans. Nuc. Sci.*, vol. 48, no. 1, 111–6, Feb. 2001.
- [46] D. F. Yu, J. A. Fessler, and E. P. Ficaro, "Maximum likelihood transmission image reconstruction for overlapping transmission beams," *IEEE Trans. Med. Imag.*, vol. 19, no. 11, 1094–1105, Nov. 2000.
- [45] J. W. Stayman and J. A. Fessler, "Regularization for uniform spatial resolution properties in penalized-likelihood image reconstruction," *IEEE Trans. Med. Imag.*, vol. 19, no. 6, 601–15, Jun. 2000.
- [44] D. F. Yu and J. A. Fessler, "Mean and variance of singles photon counting with deadtime," *Phys. Med. Biol.*, vol. 45, no. 7, 2043–56, Jul. 2000.
- [43] J. A. Fessler, H. Erdogan, and W. B. Wu, "Exact distribution of edge-preserving MAP estimators for linear signal models with Gaussian measurement noise," *IEEE Trans. Im. Proc.*, vol. 9, no. 6, 1049–56, Jun. 2000.
- [42] D. Y. Park, J. A. Fessler, M. G. Yost, and S. P. Levine, "Tomographic reconstruction of tracer gas concentration profiles in a room with the use of a single OP-FTIR and two iterative algorithms: ART and PWLS," *J Air Waste Manag Assoc*, vol. 50, no. 3, 357–70, Mar. 2000.
- [41] H. Erdogan and J. A. Fessler, "Ordered subsets algorithms for transmission tomography," *Phys. Med. Biol.*, vol. 44, no. 11, 2835–51, Nov. 1999.
- [40] H. Erdogan and J. A. Fessler, "Monotonic algorithms for transmission tomography," *IEEE Trans. Med. Imag.*, vol. 18, no. 9, 801–14, Sep. 1999.
- [39] M. Yavuz and J. A. Fessler, "Penalized-likelihood estimators and noise analysis for randoms-precorrected PET transmission scans," *IEEE Trans. Med. Imag.*, vol. 18, no. 8, 665–74, Aug. 1999.
- [38] J. A. Fessler and S. D. Booth, "Conjugate-gradient preconditioning methods for shift-variant PET image reconstruction," *IEEE Trans. Im. Proc.*, vol. 8, no. 5, 688–99, May 1999.
- [37] A. O. Hero, R. Piramuthu, S. R. Titus, and J. A. Fessler, "Minimax emission computed tomography using high resolution anatomical side information and B-spline models," *IEEE Trans. Info. Theory*, vol. 45, no. 3, 920–38, Apr. 1999.
- [36] M. Yavuz and J. A. Fessler, "Statistical image reconstruction methods for randoms-precorrected PET scans," *Med. Im. Anal.*, vol. 2, no. 4, 369–78, Dec. 1998.
- [35] J. A. Fessler, "On the convergence of mean field procedures for MRF's," *IEEE Trans. Im. Proc.*, vol. 7, no. 6, p. 917, Jun. 1998.

- [34] J. A. Fessler, "Spatial resolution and noise tradeoffs in pinhole imaging system design: A density estimation approach," *Optics Express*, vol. 2, no. 6, 237–53, Mar. 1998.
- [33] J. A. Fessler, "Invited discussion of "The EM algorithm - An old folk song sung to a fast new tune" by X.-L. Meng and D. van Dyk," *J. Royal Stat. Soc. Ser. B*, vol. 59, no. 3, 553–4, 1997.
- [32] K. F. Koral, S. Lin, J. A. Fessler, M. S. Kaminski, and R. L. Wahl, "Preliminary results from intensity-based CT-SPECT fusion in I-131 anti-B1 monoclonal-antibody therapy of lymphoma," *Cancer*, vol. 80, no. S12, 2538–44, Dec. 1997.
- [31] M. C. Wrobel, N. H. Clinthorne, J. A. Fessler, Y. Zhang, S. J. Wilderman, and W. L. Rogers, "A proposed method for correcting aperture penetration in high energy slit aperture and pinhole SPECT," *IEEE Trans. Nuc. Sci.*, vol. 44, no. 4, 1564–70, Aug. 1997.
- [30] P. E. Kinahan, J. A. Fessler, and J. S. Karp, "Statistical image reconstruction in PET with compensation for missing data," *IEEE Trans. Nuc. Sci.*, vol. 44, no. 4, 1552–7, Aug. 1997.
- [29] M. Yavuz and J. A. Fessler, "New statistical models for randoms-precorrected PET scans," in *Information Processing in Medical Im. Ser. Lecture Notes in Computer Science*, J. Duncan and G. Gindi, Eds., vol. 1230, Berlin: Springer-Verlag, 1997, pp. 190–203.
- [28] J. A. Fessler, E. P. Ficaro, N. H. Clinthorne, and K. Lange, "Grouped-coordinate ascent algorithms for penalized-likelihood transmission image reconstruction," *IEEE Trans. Med. Imag.*, vol. 16, no. 2, 166–75, Apr. 1997.
- [27] A. O. Hero, M. Usman, A. C. Sauve, and J. A. Fessler, "Recursive algorithms for computing the Cramer-Rao bound," *IEEE Trans. Sig. Proc.*, vol. 45, no. 3, 803–7, Mar. 1997.
- [26] J. M. Ollinger and J. A. Fessler, "Positron emission tomography," *IEEE Sig. Proc. Mag.*, vol. 14, no. 1, 43–55, Jan. 1997.
- [25] D. E. Kuhl, S. Minoshima, J. A. Fessler, K. A. Frey, N. L. Foster, E. P. Ficaro, D. M. Wieland, and R. A. Koeppe, "In vivo mapping of cholinergic terminals in normal aging, Alzheimer's disease and Parkinson's disease," *Annals of Neurology*, vol. 40, no. 3, 399–410, Sep. 1996.
- [24] J. A. Fessler and W. L. Rogers, "Spatial resolution properties of penalized-likelihood image reconstruction methods: Space-invariant tomographs," *IEEE Trans. Im. Proc.*, vol. 5, no. 9, 1346–58, Sep. 1996.
- [23] A. O. Hero, J. A. Fessler, and M. Usman, "Exploring estimator bias-variance tradeoffs using the uniform CR bound," *IEEE Trans. Sig. Proc.*, vol. 44, no. 8, 2026–41, Aug. 1996.
- [22] J. A. Fessler, "Mean and variance of implicitly defined biased estimators (such as penalized maximum likelihood): Applications to tomography," *IEEE Trans. Im. Proc.*, vol. 5, no. 3, 493–506, Mar. 1996.
- [21] E. P. Ficaro, J. A. Fessler, P. D. Shreve, J. N. Kritzman, P. A. Rose, and J. R. Corbett, "Simultaneous transmission/emission myocardial perfusion tomography: Diagnostic accuracy of attenuation-corrected 99m-Tc-Sestamibi SPECT," *Circulation*, vol. 93, no. 3, 463–73, Feb. 1996.
- [20] J. A. Fessler, "Hybrid Poisson/polynomial objective functions for tomographic image reconstruction from transmission scans," *IEEE Trans. Im. Proc.*, vol. 4, no. 10, 1439–50, Oct. 1995.
- [19] K. Lange and J. A. Fessler, "Globally convergent algorithms for maximum a posteriori transmission tomography," *IEEE Trans. Im. Proc.*, vol. 4, no. 10, 1430–8, Oct. 1995.
- [18] J. A. Fessler and A. O. Hero, "Penalized maximum-likelihood image reconstruction using space-alternating generalized EM algorithms," *IEEE Trans. Im. Proc.*, vol. 4, no. 10, 1417–29, Oct. 1995.
- [17] E. P. Ficaro, J. A. Fessler, R. J. Ackerman, W. L. Rogers, J. R. Corbett, and M. Schwaiger, "Simultaneous transmission-emission Tl-201 cardiac SPECT: Effect of attenuation correction on myocardial tracer distribution," *J. Nuc. Med.*, vol. 36, no. 6, 921–31, Jun. 1995.

- [16] A. O. Hero and J. A. Fessler, "Convergence in norm for alternating expectation-maximization (EM) type algorithms," *Statistica Sinica*, vol. 5, no. 1, 41–54, Jan. 1995.
- [15] J. A. Fessler and A. O. Hero, "Space-alternating generalized expectation-maximization algorithm," *IEEE Trans. Sig. Proc.*, vol. 42, no. 10, 2664–77, Oct. 1994.
- [14] A. O. Hero and J. A. Fessler, "A recursive algorithm for computing Cramer-Rao-type bounds on estimator covariance," *IEEE Trans. Info. Theory*, vol. 40, no. 4, 1205–10, Jul. 1994.
- [13] J. A. Fessler, "Penalized weighted least-squares image reconstruction for positron emission tomography," *IEEE Trans. Med. Imag.*, vol. 13, no. 2, 290–300, Jun. 1994.
- [12] P. C. Chiao, W. L. Rogers, J. A. Fessler, N. H. Clinthorne, and A. O. Hero, "Model-based estimation with boundary side information or boundary regularization," *IEEE Trans. Med. Imag.*, vol. 13, no. 2, 227–34, Jun. 1994.
- [11] P. C. Chiao, W. L. Rogers, N. H. Clinthorne, J. A. Fessler, and A. O. Hero, "Model-based estimation for dynamic cardiac studies using ECT," *IEEE Trans. Med. Imag.*, vol. 13, no. 2, 217–26, Jun. 1994.
- [10] E. P. Ficaro, J. A. Fessler, W. L. Rogers, and M. Schwaiger, "Comparison of Americium-241 and Technicium-99m as transmission sources for attenuation correction of Thallium-201 SPECT imaging of the heart," *J. Nuc. Med.*, vol. 35, no. 4, 652–63, Apr. 1994.
- [9] D. E. Kuhl, R. A. Koeppe, J. A. Fessler, S. Minoshima, R. J. Ackerman, J. E. Carey, D. L. Gildersleeve, K. A. Frey, and D. M. Wieland, "In vivo mapping of cholinergic neurons in the human brain using SPECT and IBVM," *J. Nuc. Med.*, vol. 35, no. 3, 405–10, Mar. 1994.
- [8] J. A. Fessler, N. H. Clinthorne, and W. L. Rogers, "On complete data spaces for PET reconstruction algorithms," *IEEE Trans. Nuc. Sci.*, vol. 40, no. 4, 1055–61, Aug. 1993.
- [7] J. A. Fessler, "Tomographic reconstruction using information weighted smoothing splines," in *Information Processing in Medical Im. Ser. Lecture Notes in Computer Science*, H. H. Barrett and A. F. Gmitro, Eds., vol. 687, Berlin: Springer-Verlag, 1993, pp. 372–86.
- [6] J. A. Fessler, N. H. Clinthorne, and W. L. Rogers, "Regularized emission image reconstruction using imperfect side information," *IEEE Trans. Nuc. Sci.*, vol. 39, no. 5, 1464–71, Oct. 1992.
- [5] J. A. Fessler and A. Macovski, "Object-based 3-D reconstruction of arterial trees from magnetic resonance angiograms," *IEEE Trans. Med. Imag.*, vol. 10, no. 1, 25–39, Mar. 1991.
- [4] J. A. Fessler, "Nonparametric fixed-interval smoothing of nonlinear vector-valued measurements," *IEEE Trans. Sig. Proc.*, vol. 39, no. 4, 907–13, Apr. 1991.
- [3] J. A. Fessler, "Nonparametric fixed-interval smoothing with vector splines," *IEEE Trans. Sig. Proc.*, vol. 39, no. 24, 852–9, Apr. 1991.
- [2] Y. Bresler, J. A. Fessler, and A. Macovski, "A Bayesian approach to reconstruction from incomplete projections of a multiple object 3-D domain," *IEEE Trans. Patt. Anal. Mach. Int.*, vol. 11, no. 8, 840–58, Aug. 1989.
- [1] Y. Bresler, J. A. Fessler, and A. Macovski, "Model based estimation techniques for 3-D reconstruction from projections," *Machine Vision and Applications*, vol. 1, no. 2, 115–26, Jun. 1988.

### Refereed Journal Papers in Press

- [3] C. Martinez, J. A. Fessler, M. Desco, and M. Abella, "Statistical image reconstruction with beam hardening compensation for X-ray CT by a calibration step (2DIterBH)," *Phys. Med. Biol.*, 2024, To appear.
- [2] M. Gao, J. A. Fessler, and H.-P. Chan, "X-ray source motion blur modeling and deblurring with generative diffusion for digital breast tomosynthesis," *Phys. Med. Biol.*, 2024, To appear.

- [1] S. Guo, J. A. Fessler, and D. C. Noll, “Manifold regularizer for high-resolution fMRI joint reconstruction and dynamic quantification,” *IEEE Trans. Med. Imag.*, 2024, To appear.

### Journal Papers Submitted

- [26] T. Hong, X. Xu, J. Hu, and J. A. Fessler, “Provable preconditioned plug-and-play approach for compressed sensing MRI reconstruction,” *IEEE Trans. Computational Imaging*, 2024.
- [25] J. S. Cavazos, J. A. Fessler, and L. Balzano, “ALPCAHUS: Subspace learning & clustering for heteroscedastic data,” *IEEE Trans. Sig. Proc.*, 2024, Submitted.
- [24] J. Yang, J.-F. Nielsen, J. A. Fessler, and Y. Jiang, “Multi-dimensional RF pulse design in spin-domain using auto-differentiation for MRI,” *IEEE Trans. Med. Imag.*, 2024, Submitted.
- [23] K. Gilman, D. Hong, J. A. Fessler, and L. Balzano, “Streaming probabilistic PCA for missing data with heteroscedastic noise,” *IEEE Trans. Sig. Proc.*, 2023, Submitted.
- [22] Z. Li, J. Hu, X. Xu, L. Shen, and J. A. Fessler, “Poisson-Gaussian holographic phase retrieval with score-based image prior,” *IEEE Trans. Computational Imaging*, 2023, Submitted.
- [21] S. T. Whitaker, J.-F. Nielsen, and J. A. Fessler, “End-to-end MRI scan design approach for improved myelin water imaging,” *Mag. Res. Med.*, 2022, Submitted.
- [20] C. Y. Lin, D. C. Noll, and J. A. Fessler, “A spatiotemporal model for task-based functional MRI reconstruction,” *IEEE Trans. Med. Imag.*, 2021, Submitted.
- [19] A. M. Cerjanic, G. C. Ngo, J. L. Holtrop, B. Leback, G. Arnold, M. V. Moer, G. LaBelle, J. A. Fessler, C. L. Johnson, and B. P. Sutton, “PowerGrid: An open source toolkit for accelerated, iterative magnetic resonance image reconstruction using graphics processing units,” *Mag. Res. Med.*, 2019, Submitted.
- [18] G. Nataraj, J.-F. Nielsen, M. Gao, and J. A. Fessler, “Fast, precise myelin water quantification using DESS MRI and kernel learning,” *Mag. Res. Med.*, 2018, Submitted.
- [17] C. H. McCollough, P. M. Edic, J. A. Fessler, J. G. Fletcher, G. J. Gang, R. Otazo, N. J. Pelc, A. D. Sodickson, D. K. Sodickson, J. Webster Stayman, G. Wang, T. F. Wenisch, H. Yu, and L. Yu, “Achieving submillisievert CT scanning: Where are we now?” *Radiology*, 2018, Submitted.
- [16] M. J. Muckley, M. V. W. Zibetti, and J. A. Fessler, “Fast non-Cartesian MR image reconstruction via circulant-preconditioned algorithms with line search (LS-MOCHA),” *IEEE Trans. Computational Imaging*, 2018, Submitted.
- [15] Q. Ding, Y. Long, X. Zhang, and J. A. Fessler, “Statistical image reconstruction using mixed Poisson-Gaussian noise model for X-ray CT,” *Inverse Prob. and Imaging*, 2019, Submitted.
- [14] X. Zheng, I. Y. Chun, Z. Li, Y. Long, and J. A. Fessler, “Sparse-view X-ray CT reconstruction using  $\ell_1$  prior with learned transform,” *IEEE Trans. Computational Imaging*, 2019, Submitted.
- [13] H. Nien and J. A. Fessler, “Proximal average algorithm for imaging problems with analysis sparsity-promoting regularization,” *IEEE Trans. Computational Imaging*, 2017, Submitted.
- [12] L. Fu, J. A. Fessler, P. E. Kinahan, and B. D. Man, “A channelized preconditioning method for accelerated fully 3D iterative CT reconstruction,” *IEEE Trans. Med. Imag.*, 2017, Submitted.
- [11] M. G. McGaffin, H. Chen, J. A. Fessler, and V. Sick, “A practical light transport system model for chemiluminescence distribution reconstruction,” *IEEE Trans. Computational Imaging*, 2016, Submitted.
- [10] D. Kim and J. A. Fessler, “Fast dual proximal gradient algorithms with rate  $O(1/k^{1.5})$  for convex minimization,” *Oper. Res. Lett.*, 2016, Submitted.

- [9] L. Liu, Y. Cao, S.-H. Hsu, H. Nien, J. A. Fessler, and J. M. Balter, "Integration of bias field correction to improve multispectral classification of soft tissues in support of synthetic CT generation for radiation therapy," *Phys. Med. Biol.*, 2015, Submitted.
- [8] F. Zhao, H. Sun, J. A. Fessler, J.-F. Nielsen, and D. C. Noll, "Balanced SSFP-like imaging with simultaneous water-fat separation and band reduction using small-tip fast recovery imaging," *Mag. Res. Im.*, 2014, Submitted.
- [7] D. S. Weller and J. A. Fessler, "Dynamic image reconstruction," *IEEE Sig. Proc. Mag.*, 2014, Submitted.
- [6] M. J. Allison and J. A. Fessler, "Accelerated computation of regularized field map estimates in MRI," *IEEE Trans. Med. Imag.*, 2014, Submitted.
- [5] H. Nien and J. A. Fessler, "A convergence proof of the split Bregman method for regularized least-squares problems," *SIAM J. Imaging Sci.*, 2013, Submitted.
- [4] A. Matakos, J.-F. Nielsen, and J. A. Fessler, "Model based Nyquist ghost correction for EPI," *IEEE Trans. Med. Imag.*, 2013, Submitted.
- [3] S. Ramani and J. A. Fessler, "Investigation of orthonormal wavelets for statistical reconstruction in 3-D CT," *Med. Phys.*, 2012, Submitted as 12-1078.
- [2] D. Yoon, H. Jahanian, J. A. Fessler, D. C. Noll, and L. Hernandez-Garcia, "Spatially selective PCASL with parallel excitation," *Mag. Res. Med.*, 2011, Submitted.
- [1] A. K. Funai, J. A. Fessler, W. Grissom, and D. C. Noll, "Regularized B1 mapping in MRI," *IEEE Trans. Med. Imag.*, 2009, Submitted.

### Conference Proceedings Papers

- [288] Z. Li, J. Hu, X. Xu, L. Shen, and J. A. Fessler, "Poisson-Gaussian holographic phase retrieval with score-based image prior," in *NeurIPS Wk. Deep Inverse*, Submitted, 2023.
- [287] A. Xu, L. Balzano, and J. A. Fessler, "HeMPPCAT: mixtures of probabilistic principal component analysers for data with heteroscedastic noise," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, To appear, 2023.
- [286] J. A. S. Cavazos, J. A. Fessler, and L. Balzano, "Sample-wise heteroscedastic PCA with tail singular value regularization," in *Proc. IEEE Intl. Conf. on Sampling Theory and Appl. (SampTA)*, 2023, 1–6.
- [285] M. Gao, M. A. Helvie, R. K. Samala, L. M. Hadjiyski, J. A. Fessler, and H.-P. Chan, "Deep CNN task-based image quality assessment: Application to digital breast tomosynthesis reconstruction and denoising," in *Proc. SPIE 12463 Medical Imaging: Phys. Med. Im.*, 2023, p. 1 246 319.
- [284] Z. Li, Y. K. Dewaraja, and J. A. Fessler, "ESR-net: an efficient image super-resolution network for SPECT reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, To appear, 2022.
- [283] M. Gao, J. A. Fessler, and H.-P. Chan, "Deep convolutional neural network regularized digital breast tomosynthesis reconstruction with detector blur and correlated noise modeling," in *Proc. SPIE 12031 Medical Imaging: Phys. Med. Im.*, 2022, p. 1 203 108.
- [282] H. Muthukrishnan, D. Nellans, D. Lustig, J. A. Fessler, and T. Wensich, "Efficient multi-GPU shared memory via automatic optimization of fine-grained transfers," in *Intl. Symp. Comp. Arch.*, 2021, 139–52.
- [281] C. Crockett and J. A. Fessler, "Motivating bilevel approaches to filter learning: A case study," in *Proc. IEEE Intl. Conf. on Image Processing*, 2021, 2803–7.
- [280] Z. Li, J. A. Fessler, and K. Lange, "Poisson phase retrieval with Wirtinger flow," in *Proc. IEEE Intl. Conf. on Image Processing*, 2021, 2828–32.
- [279] B. L. West, A. Mirhosseini, J. A. Fessler, and T. F. Wensich, "Jigsaw: A slice-and-dice approach to non-uniform FFT acceleration for MRI image reconstruction," in *IPDPS*, 2021, 714–23.

- [278] M. Gao, J. A. Fessler, and H.-P. Chan, "Digital breast tomosynthesis denoising using deep convolutional neural network: Effects of dose level of training target images," in *Proc. SPIE 11595 Medical Imaging: Phys. Med. Im.*, 2021, 115951K.
- [277] Z. Li, J. A. Fessler, J. K. Mikell, S. J. Wilderman, and Y. K. Dewaraja, "A deep residual learning network for practical voxel dosimetry in radionuclide therapy," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2020.
- [276] V. E. Nwadeyi, J. A. Fessler, and Z. He, "Region of interest image reconstruction for Compton imaging using 3D position sensing CdZnTe," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2020.
- [275] C. Martinez, J. A. Fessler, M. Desco, and M. Abella, "Segmentation-free statistical method for polyenergetic X-ray computed tomography with a calibration step," in *Proc. 6th Intl. Mtg. on Image Formation in X-ray CT*, 2020, 118–21.
- [274] R. Zeng, C. Lin, Q. Li, J. Lu, J. A. Fessler, and K. J. Myers, "Generalizability test of deep learning-based CT image denoising," in *Proc. 6th Intl. Mtg. on Image Formation in X-ray CT*, 2020, 224–7.
- [273] C. Y. Lin, D. C. Noll, and J. A. Fessler, "A temporal model for task-based functional MR images," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2020, 1035–8.
- [272] N. Murthy and J. A. Fessler, "Block axial checkerboarding: A distributed algorithm for helical X-Ray CT reconstruction," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2020, 191–4.
- [271] Z. Huang, J. A. Fessler, T. B. Norris, and I. Y. Chun, "Light-field reconstruction and depth estimation from focal stack images using convolutional neural networks," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, invited, 2020, 8648–52.
- [270] M. Gao, R. K. Samala, J. A. Fessler, and H.-P. Chan, "Deep convolutional neural network denoising for digital breast tomosynthesis reconstruction," in *Proc. SPIE 11312 Medical Imaging: Phys. Med. Im.*, 2020, 113120Q.
- [269] H. Lim, Y. K. Dewaraja, and J. A. Fessler, "Joint low-count PET/CT segmentation and reconstruction with paired variational neural networks," in *Proc. SPIE 11312 Medical Imaging: Phys. Med. Im.*, 2020, 113120U.
- [268] C. J. Blocker and J. A. Fessler, "Blind unitary transform learning for inverse problems in light-field imaging," in *Proc. Intl. Conf. Comp. Vision*, 2019, 3933–42.
- [267] X. Zheng, I. Y. Chun, Y. Long, and J. A. Fessler, "BCD-net for low-dose CT reconstruction: Acceleration, convergence, and generalization," in *Medical Image Computing and Computer-Assisted Intervention*, 2019, 31–40.
- [266] H. Xiang, H. Lim, J. A. Fessler, and Y. K. Dewaraja, "SPECT/CT scatter correction using a deep convolutional neural network: Implementation in Y-90 imaging," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2019, 1–3.
- [265] C. Crockett, D. Hong, I. Y. Chun, and J. A. Fessler, "Incorporating handcrafted filters in convolutional analysis operator learning for ill-posed inverse problems," in *Proc. Intl. Wkshp. Comp. Adv. Multi-Sensor Adapt. Proc.*, Invited submission, 2019, 316–20.
- [264] D. Hong, L. Balzano, and J. A. Fessler, "Probabilistic PCA for heteroscedastic data," in *Proc. Intl. Wkshp. Comp. Adv. Multi-Sensor Adapt. Proc.*, Invited submission, 2019, 26–30.
- [263] Z. Li, S. Ravishankar, Y. Long, and J. A. Fessler, "Learned mixed material models for efficient clustering based dual-energy CT image decomposition," in *IEEE GlobalSIP*, 2018, 529–33.
- [262] S. Y. Chun, H. Lim, J. A. Fessler, and Y. K. Dewaraja, "On parameter selection for joint spectral reconstruction in Y90 SPECT," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2018, 1–4.
- [261] H. Lim, J. A. Fessler, Y. K. Dewaraja, and I. Y. Chun, "Application of trained deep BCD-net to iterative low-count PET image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2018, 1–4.



- [260] I. Y. Chun, H. Lim, Z. Huang, and J. A. Fessler, “Fast and convergent iterative image recovery using trained convolutional neural networks,” in *Allerton Conf. on Comm., Control, and Computing*, Invited., 2018, 155–9.
- [259] I. Y. Chun and J. A. Fessler, “Convolutional analysis operator learning: Application to sparse-view CT,” in *Proc., IEEE Asilomar Conf. on Signals, Systems, and Comp.*, Invited., 2018, 1631–5.
- [258] D. Hong, R. Malinas, J. A. Fessler, and L. Balzano, “Learning dictionary-based unions of subspaces for image denoising,” in *EUSIPCO*, Invited to special session on Emerging Data Structure Paradigms for Subspace Estimation, 2018, 1597–601.
- [257] C. Blocker, I. Y. Chun, and J. A. Fessler, “Low-rank plus sparse tensor models for light-field reconstruction from focal stack data,” in *Proc. IEEE Wkshp. on Image, Video, Multidim. Signal Proc.*, 2018, 1–5.
- [256] I. Y. Chun and J. A. Fessler, “Deep BCD-net using identical encoding-decoding CNN structures for iterative image recovery,” in *Proc. IEEE Wkshp. on Image, Video, Multidim. Signal Proc.*, 2018, 1–5.
- [255] C. Martinez, J. A. Fessler, M. Desco, and M. Abella, “Statistical image reconstruction with sample-based beam-hardening compensation for X-ray CT,” in *Proc. 5th Intl. Mtg. on Image Formation in X-ray CT*, 2018, 11–4.
- [254] H. Muthukrishnan, T. F. Wenisch, and J. A. Fessler, “Improving GPU scaling for X-ray CT,” in *Proc. 5th Intl. Mtg. on Image Formation in X-ray CT*, 2018, 256–9.
- [253] G. Ongie, N. Murthy, L. Balzano, and J. A. Fessler, “A memory-efficient algorithm for large-scale sparsity regularized image reconstruction,” in *Proc. 5th Intl. Mtg. on Image Formation in X-ray CT*, 2018, 20–3.
- [252] Z. Li, S. Ravishankar, Y. Long, and J. A. Fessler, “Image-domain material decomposition using data-driven sparsity models for dual-energy CT,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, Award for best student paper., 2018, 52–6.
- [251] C. Y. Lin and J. A. Fessler, “Accelerated methods for low-rank plus sparse image reconstruction,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2018, 48–51.
- [250] L. Liu, A. Johansson, J. M. Balter, Y. Cao, and J. A. Fessler, “Accelerated high B-value diffusion-weighted imaging via phase-constrained low-rank tensor model,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2018, 344–8.
- [249] S. Ravishankar, A. Lahiri, C. Blocker, and J. A. Fessler, “Deep dictionary-transform learning for image reconstruction,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2018, 1208–12.
- [248] S. Ye, S. Ravishankar, Y. Long, and J. A. Fessler, “Adaptive sparse modeling and shifted-Poisson likelihood based approach for low-dose CT image reconstruction,” in *Proc. IEEE Wkshp. Machine Learning for Signal Proc.*, 2017, 1–6.
- [247] G. Ongie, S. Dewangan, J. A. Fessler, and L. Balzano, “Online dynamic MRI reconstruction via robust subspace tracking,” in *IEEE GlobalSIP*, 2017, 1180–4.
- [246] H. Lim, Y. K. Dewaraja, and J. A. Fessler, “Reducing bias in Y-90 PET images by enforcing non-negativity in projection space,” in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2017, 1–4.
- [245] S. Ravishankar, B. E. Moore, R. R. Nadakuditi, and J. A. Fessler, “Efficient online dictionary adaptation and image reconstruction for dynamic MRI,” in *Proc., IEEE Asilomar Conf. on Signals, Systems, and Comp.*, 2017, 835–9.
- [244] S. Ravishankar, I. Y. Chun, and J. A. Fessler, “Physics-driven deep training of dictionary-based algorithms for MR image reconstruction,” in *Proc., IEEE Asilomar Conf. on Signals, Systems, and Comp.*, Invited., 2017, 1859–63.

- [243] I. Y. Chun and J. A. Fessler, “Convergent convolutional dictionary learning using adaptive contrast enhancement (CDL-ACE): application of CDL to image denoising,” in *Proc. IEEE Intl. Conf. on Sampling Theory and Appl. (SampTA)*, 2017, 460–4.
- [242] I. Y. Chun, X. Zheng, Y. Long, and J. A. Fessler, “Sparse-view X-ray CT reconstruction using  $\ell_1$  regularization with learned sparsifying transform,” in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2017, 115–9.
- [241] L. Fu, J. A. Fessler, P. E. Kinahan, and B. De Man, “Combining non-diagonal preconditioning and ordered-subsets for iterative CT reconstruction,” in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2017, 760–6.
- [240] X. Zheng, S. Ravishankar, Y. Long, and J. A. Fessler, “Union of learned sparsifying transforms based low-dose 3D CT image reconstruction,” in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2017, 69–72.
- [239] G. Ongie, J. Shi, and J. A. Fessler, “Efficient computation of regularized field map estimates in 3D,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2017, 700–3.
- [238] G. Nataraj, J.-F. Nielsen, and J. A. Fessler, “Dictionary-free MRI parameter estimation via kernel ridge regression,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2017, 5–9.
- [237] D. Kim and J. A. Fessler, “Accelerated dual gradient-based methods for total variation image denoising/deblurring problems,” in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, 2017, 6230–4.
- [236] X. Xie, M. G. McGaffin, Y. Long, J. A. Fessler, M. Wen, and J. Lin, “Accelerating separable footprint (SF) forward and back projection on GPU,” in *Proc. SPIE 10132 Medical Imaging: Phys. Med. Im.*, 2017, 101322S.
- [235] J. Zheng, J. A. Fessler, and H.-P. Chan, “Effects of detector blur and correlated noise on digital breast tomosynthesis reconstruction,” in *Proc. SPIE 10132 Medical Imaging: Phys. Med. Im.*, 2017, p. 1 013 226.
- [234] D. Hong, L. Balzano, and J. A. Fessler, “Towards a theoretical analysis of PCA for heteroscedastic data,” in *Allerton Conf. on Comm., Control, and Computing*, 2016, 496–503.
- [233] S. Ravishankar, B. Moore, R. R. Nadakuditi, and J. A. Fessler, “Efficient learning of dictionaries with low-rank atoms,” in *IEEE GlobalSIP*, 2016, 222–6.
- [232] S. Ravishankar, R. R. Nadakuditi, and J. A. Fessler, “Sum of outer products dictionary learning for inverse problems,” in *IEEE GlobalSIP*, 2016, 1142–6.
- [231] S. Ravishankar, B. E. Moore, R. R. Nadakuditi, and J. A. Fessler, “LASSI: A low-rank and adaptive sparse signal model for highly accelerated dynamic imaging,” in *Proc. IEEE Wkshp. on Image, Video, Multidim. Signal Proc.*, 2016, 1–5.
- [230] X. Zheng, Z. Lu, S. Ravishankar, Y. Long, and J. A. Fessler, “Low dose CT image reconstruction with trained sparsifying transform,” in *Proc. IEEE Wkshp. on Image, Video, Multidim. Signal Proc.*, 2016, 1–5.
- [229] Q. Ding, Y. Long, X. Zhang, and J. A. Fessler, “Modeling mixed Poisson-Gaussian noise in statistical image reconstruction for X-ray CT,” in *Proc. 4th Intl. Mtg. on Image Formation in X-ray CT*, 2016, 399–402.
- [228] M. G. McGaffin and J. A. Fessler, “Accelerated parallel and distributed iterative coordinate descent (ICD) for X-ray CT,” in *Proc. 4th Intl. Mtg. on Image Formation in X-ray CT*, 2016, 537–40.
- [227] R. Sampson, M. G. McGaffin, T. F. Wensich, and J. A. Fessler, “Investigating multi-threaded SIMD for helical CT reconstruction on a CPU,” in *Proc. 4th Intl. Mtg. on Image Formation in X-ray CT*, 2016, 275–8.
- [226] J. Zheng, J. A. Fessler, and H.-P. Chan, “Digital breast tomosynthesis reconstruction with detector blur and correlated noise,” in *Proc. 4th Intl. Mtg. on Image Formation in X-ray CT*, 2016, 21–4.

- [225] S. Y. Chun, K. Y. Kim, J. S. Lee, and J. A. Fessler, "Joint estimation of activity distribution and attenuation map for TOF-PET using alternating direction method of multiplier," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2016, 86–9.
- [224] J. Zheng, J. A. Fessler, and H.-P. Chan, "Digital breast tomosynthesis reconstruction using spatially weighted non-convex regularization," in *Proc. SPIE 9783 Medical Imaging: Phys. Med. Im.*, 2016, p. 978 369.
- [223] M. P. Nguyen, H. Kim, S. Y. Chun, J. A. Fessler, and Y. K. Dewaraja, "Joint spectral image reconstruction for Y-90 SPECT with multi-window acquisition," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2015, 1–4.
- [222] D. Kim and J. A. Fessler, "An optimized first-order method for image restoration," in *Proc. IEEE Intl. Conf. on Image Processing*, 2015, 3675–9.
- [221] H. Nien, V. Sick, and J. A. Fessler, "Model-based image reconstruction of chemiluminescence using plenoptic 2.0 camera," in *Proc. IEEE Intl. Conf. on Image Processing*, 2015, 359–63.
- [220] J. H. Cho, D. Pal, J.-B. Thibault, and J. A. Fessler, "Reducing short-scan artifacts in 3D axial cone-beam CT with extra views," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 2015, 150–3.
- [219] D. Kim and J. A. Fessler, "Distributed block-separable ordered subsets for helical X-ray CT image reconstruction," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 2015, 138–41.
- [218] M. G. McGaffin and J. A. Fessler, "Fast GPU-driven model-based X-ray CT image reconstruction via alternating dual updates," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 2015, 312–5.
- [217] H. Nien and J. A. Fessler, "Relaxed linearized algorithm for faster X-ray CT image reconstruction," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 2015, 260–3.
- [216] S. M. Schmitt and J. A. Fessler, "Fast variance prediction for iteratively reconstructed CT with arbitrary geometries," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 2015, 228–31.
- [215] J. H. Cho and J. A. Fessler, "Uniform spatial resolution for statistical image reconstruction for 3D cone-beam CT," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, Poster presentation., 2014.
- [214] J. Y. Song, J. A. Fessler, and C. R. Meyer, "Adaptive Parzen windowing on mutual information for intermodal non-rigid image registration," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, Poster presentation., 2014.
- [213] B. E. Moore, R. R. Nadakuditi, and J. A. Fessler, "Improved robust PCA using low-rank denoising with optimal singular value shrinkage," in *IEEE Workshop on Statistical Signal Processing*, 2014, 13–6.
- [212] D. Kim and J. A. Fessler, "Optimized momentum steps for accelerating X-ray CT ordered subsets image reconstruction," in *Proc. 3rd Intl. Mtg. on Image Formation in X-ray CT*, 2014, 103–6.
- [211] M. G. McGaffin and J. A. Fessler, "Duality-based projection-domain tomography solver for splitting-based X-ray CT reconstruction," in *Proc. 3rd Intl. Mtg. on Image Formation in X-ray CT*, 2014, 359–62.
- [210] H. Nien and J. A. Fessler, "Fast splitting-based ordered-subsets X-ray CT image reconstruction," in *Proc. 3rd Intl. Mtg. on Image Formation in X-ray CT*, 2014, 291–4.
- [209] M. J. Muckley and J. A. Fessler, "Fast MR image reconstruction with orthogonal wavelet regularization via shift-variant shrinkage," in *Proc. IEEE Intl. Conf. on Image Processing*, 2014, 3651–5.
- [208] G. Nataraj, J.-F. Nielsen, and J. A. Fessler, "Model-based estimation of T2 maps with dual-echo steady-state MR imaging," in *Proc. IEEE Intl. Conf. on Image Processing*, 2014, 1877–81.
- [207] H. Sun, W. A. Grissom, and J. A. Fessler, "Regularized estimation of Bloch-Siegert B1+ Maps in MRI," in *Proc. IEEE Intl. Conf. on Image Processing*, 2014, 3646–50.

- [206] D. S. Weller, A. Pnueli, O. Radzyner, G. Divon, Y. C. Eldar, and J. A. Fessler, "Phase retrieval of sparse signals using optimization transfer and ADMM," in *Proc. IEEE Intl. Conf. on Image Processing*, 2014, 1342–6.
- [205] H. Nien and J. A. Fessler, "Accelerating ordered-subsets X-ray CT image reconstruction using the linearized augmented Lagrangian framework," in *Proc. SPIE 9033 Medical Imaging: Phys. Med. Im.*, 2014, p. 903 332.
- [204] M. G. McGaffin and J. A. Fessler, "Fast edge-preserving image denoising via group coordinate descent on the GPU," in *Proc. SPIE 9020 Computational Imaging XII*, 2014, 90200P.
- [203] S. M. Schmitt, J. A. Fessler, G. D. Fichter, and D. A. Zimdars, "Model-based, one-sided, time-of-flight terahertz image reconstruction," in *Proc. SPIE 9020 Computational Imaging XII*, 2014, 90200N.
- [202] J. H. Cho and J. A. Fessler, "Motion-compensated image reconstruction for cardiac CT with sinogram-based motion estimation," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2013, 1–5.
- [201] J. H. Cho and J. A. Fessler, "Quadratic regularization design for 3D axial CT: Towards isotropic noise," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2013, 1–5.
- [200] D. Kim and J. A. Fessler, "Ordered subsets acceleration using relaxed momentum for X-ray CT image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2013, 1–5.
- [199] D. S. Weller and J. A. Fessler, "Prospective motion correction for functional MRI using sparsity and Kalman filtering," in *Proc. SPIE 8858 Wavelets and Sparsity XV*, Invited submission., 2013, p. 885 823.
- [198] J. H. Cho and J. A. Fessler, "Quadratic regularization design for 3D axial CT," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2013, 78–81.
- [197] S. Y. Chun, Y. K. Dewaraja, and J. A. Fessler, "Alternating direction method of multiplier for emission tomography with non-local regularizers," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2013, 62–5.
- [196] L. Fu, Z. Yu, J.-B. Thibault, B. D. Man, M. G. McGaffin, and J. A. Fessler, "Space-variant channelized preconditioner design for 3D iterative CT reconstruction," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2013, 205–8.
- [195] D. Kim, S. Ramani, and J. A. Fessler, "Accelerating X-ray CT ordered subsets image reconstruction with Nesterov's first-order methods," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2013, 22–5.
- [194] M. McGaffin and J. A. Fessler, "Sparse shift-varying FIR preconditioners for fast volume denoising," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2013, 284–7.
- [193] H. Nien and J. A. Fessler, "Combining augmented Lagrangian method with ordered subsets for X-ray CT image reconstruction," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2013, 280–3.
- [192] J. M. Rosen, J. Wu, T. F. Wenisch, and J. A. Fessler, "Iterative helical CT reconstruction in the cloud for ten dollars in five minutes," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2013, 241–4.
- [191] S. M. Schmitt and J. A. Fessler, "Fast variance prediction for iterative reconstruction of 3D helical CT images," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2013, 162–5.
- [190] D. Kim, S. Ramani, and J. A. Fessler, "Ordered subsets with momentum for accelerated X-ray CT image reconstruction," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, 2013, 920–3.
- [189] S. Ramani and J. A. Fessler, "Accelerated nonCartesian SENSE reconstruction using a majorize-minimize algorithm combining variable-splitting," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2013, 704–7.

- [188] H. Sun, D. S. Weller, A. Chu, S. Ramani, D. Yoon, J. F. Nielsen, and J. A. Fessler, "Spoke pulse design in magnetic resonance imaging using greedy minimax algorithm," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2013, 696–9.
- [187] D. S. Weller, S. Ramani, J.-F. Nielsen, and J. A. Fessler, "SURE-based parameter selection for parallel MRI reconstruction using GRAPPA and sparsity," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2013, 954–7.
- [186] F. Zhao, J. A. Fessler, S. M. Wright, J. V. Rispoli, and D. C. Noll, "Optimized linear combinations of channels for complex multiple-coil B1 field estimation with Bloch-Siegert B1 mapping in MRI," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2013, 942–5.
- [185] H. Nien and J. A. Fessler, "Splitting-based statistical X-ray CT image reconstruction with blind gain correction," in *Proc. SPIE 8668 Medical Imaging: Phys. Med. Im.*, 2013, 86681J.
- [184] S. Y. Chun and J. A. Fessler, "Fast variance image predictions for motion-compensated image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2012.
- [183] S. Y. Chun, J. A. Fessler, and Y. K. Dewaraja, "Non-local means methods using CT side information for I-131 SPECT image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2012, 3362–6.
- [182] J. M. Jaworski, J. A. Fessler, and Z. He, "Time-dependent Compton image reconstruction of moving sources," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2012.
- [181] S. Schmitt and J. A. Fessler, "Fast variance computation for quadratically penalized iterative reconstruction of 3D axial CT images," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2012, 3287–92.
- [180] J. H. Cho, S. Ramani, and J. A. Fessler, "Alternating minimization approach for multi-frame image reconstruction," in *IEEE Workshop on Statistical Signal Processing*, 2012, 225–8.
- [179] J. H. Cho, S. Ramani, and J. A. Fessler, "Motion-compensated image reconstruction with alternating minimization," in *Proc. 2nd Intl. Mtg. on Image Formation in X-ray CT*, 2012, 330–3.
- [178] D. Kim, D. Pal, J.-B. Thibault, and J. A. Fessler, "Improved ordered subsets algorithm for 3D X-ray CT image reconstruction," in *Proc. 2nd Intl. Mtg. on Image Formation in X-ray CT*, 2012, 378–81.
- [177] J. K. Kim, J. A. Fessler, and Z. Zhang, "Perturbation-based error analysis of iterative image reconstruction algorithm for X-ray computed tomography," in *Proc. 2nd Intl. Mtg. on Image Formation in X-ray CT*, 2012, 194–7.
- [176] D. Kim and J. A. Fessler, "Parallelizable algorithms for X-ray CT image reconstruction with spatially non-uniform updates," in *Proc. 2nd Intl. Mtg. on Image Formation in X-ray CT*, 2012, 33–6.
- [175] Y. Long and J. A. Fessler, "Multi-material decomposition using statistical image reconstruction in X-ray CT," in *Proc. 2nd Intl. Mtg. on Image Formation in X-ray CT*, 2012, 413–6.
- [174] S. Ramani and J. A. Fessler, "A hybrid regularizer combining orthonormal wavelets and finite differences for statistical reconstruction in 3-D CT," in *Proc. 2nd Intl. Mtg. on Image Formation in X-ray CT*, 2012, 348–51.
- [173] A. Matakos, S. Ramani, and J. A. Fessler, "Image restoration using non-circulant shift-invariant system models," in *Proc. IEEE Intl. Conf. on Image Processing*, 2012, 3061–4.
- [172] S. Ramani, J.-F. Nielsen, and J. A. Fessler, "Cross-validation and predicted risk estimation for nonlinear iterative reweighted least-squares MRI reconstruction," in *Proc. IEEE Intl. Conf. on Image Processing*, 2012, 2049–52.
- [171] M. J. Allison, S. Ramani, and J. A. Fessler, "Regularized MR coil sensitivity estimation using augmented Lagrangian methods," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2012, 394–7.

- [170] S. Ramani and J. A. Fessler, "Statistical X-ray CT reconstruction using a splitting-based iterative algorithm with orthonormal wavelets," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2012, 1008–11.
- [169] S. Ramani, J. Rosen, Z. Liu, and J. A. Fessler, "Iterative weighted risk estimation for nonlinear image restoration with analysis priors," in *Proc. SPIE 8296 Computational Imaging X*, 2012, 82960N.
- [168] J. H. Cho and J. A. Fessler, "Accelerating ordered-subsets image reconstruction for X-ray CT using double surrogates," in *Proc. SPIE 8313 Medical Imaging: Phys. Med. Im.*, 2012, p. 83131X.
- [167] M. G. McGaffin, S. Ramani, and J. A. Fessler, "Reduced memory augmented Lagrangian algorithm for 3D iterative X-ray CT image reconstruction," in *Proc. SPIE 8313 Medical Imaging: Phys. Med. Im.*, 2012, p. 831 327.
- [166] D. J. Lingenfelter, J. A. Fessler, C. D. Scott, and Z. He, "Detection performance prediction for CdZnTe array," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2011, 4616–21.
- [165] J. A. Fessler and D. Kim, "Axial block coordinate descent (ABCD) algorithm for X-ray CT image reconstruction," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2011, 262–5.
- [164] S. Ramani and J. A. Fessler, "Convergent iterative CT reconstruction with sparsity-based regularization," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2011, 302–5.
- [163] M. Wu and J. A. Fessler, "GPU acceleration of 3D forward and backward projection using separable footprints for X-ray CT image reconstruction," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, 2011, 56–9.
- [162] S. Y. Chun and J. A. Fessler, "Regularization design for isotropic spatial resolution in motion-compensated image reconstruction," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2011, 1500–3.
- [161] W. Huh and J. A. Fessler, "Iterative image reconstruction for dual-energy x-ray CT using regularized material sinogram estimates," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2011, 1512–5.
- [160] D. Kim and J. A. Fessler, "Accelerated ordered-subsets algorithm based on separable quadratic surrogates for regularized image reconstruction in X-ray CT," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2011, 1134–7.
- [159] A. Matakos and J. A. Fessler, "Dynamic MR image and fieldmap joint reconstruction accounting for through-plane fieldmap gradients," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2011, 393–6.
- [158] S. Ramani and J. A. Fessler, "Regularized parallel MRI reconstruction using an alternating direction method of multipliers," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2011, 385–8.
- [157] J.-K. Kim, Z. Zhang, and J. A. Fessler, "Hardware acceleration of iterative image reconstruction for X-ray computed tomography," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, 2011, 1697–700.
- [156] Y. Lu, H.-P. Chan, J. A. Fessler, L. Hadjiiski, J. Wei, M. Goodsitt, A. Schmitz, B. E. H. Claus, and F. W. Wheeler, "Adaptive diffusion regularization for enhancement of microcalcifications in digital breast tomosynthesis (DBT) reconstruction," in *Proc. SPIE 7961 Medical Imaging: Phys. Med. Im.*, 2011, p. 796 117.
- [155] M. Abella, J. J. Vaquero, M. Desco, and J. A. Fessler, "A statistical image reconstruction algorithm for polyenergetic X-ray CT: Preliminary results on a small-animal scanner," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, oral M04-6, but no paper., 2010.
- [154] J. M. Jaworski, C. G. Wahl, J. A. Fessler, and Z. He, "Model-based reconstruction of spectral and spatial activity distribution from objects with known motion," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2010, 1518–24.
- [153] D. J. Lingenfelter and J. A. Fessler, "Augmented Lagrangian methods for penalized likelihood reconstruction in emission tomography," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2010, 3288–91.

- [152] D. J. Lingenfelter, J. A. Fessler, C. D. Scott, and Z. He, "Predicting ROC curves for source detection under model mismatch," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2010, 1092–5.
- [151] Y. Long, J. A. Fessler, and J. M. Balter, "3D forward and back-projection for X-ray CT using separable footprints with trapezoid functions," in *Proc. 1st Intl. Mtg. on Image Formation in X-ray CT*, 2010, 216–9.
- [150] S. Y. Chun, C. Schretter, and J. A. Fessler, "Sufficient condition for local invertibility of spatio-temporal 4D B-spline deformations," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2010, 1221–4.
- [149] J. A. Fessler, "Optimization transfer approach to joint registration / reconstruction for motion-compensated image reconstruction," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2010, 596–9.
- [148] A. Funai and J. A. Fessler, "Cramer Rao bound analysis of joint B1/T1 mapping methods in MRI," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2010, 712–5.
- [147] A. Matakos and J. A. Fessler, "Joint estimation of image and fieldmap in parallel MRI using single-shot acquisitions," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2010, 984–7.
- [146] S. Ramani and J. A. Fessler, "An accelerated iterative reweighted least squares algorithm for compressed sensing MRI," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2010, 257–60.
- [145] Y. Dewaraja, K. Koral, and J. A. Fessler, "Quantitative I-131 SPECT reconstruction using CT side information from hybrid imaging," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2009, 2523–9.
- [144] W. Huh, J. A. Fessler, A. M. Alessio, and P. E. Kinahan, "Fast kVp-switching dual energy CT for PET attenuation correction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2009, 2510–5.
- [143] D. J. Lingenfelter, J. A. Fessler, C. Scott, and Z. He, "Benefits of position-sensitive detectors for source detection with known background," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2009, 636–40.
- [142] Y. Long, J. A. Fessler, and J. M. Balter, "A 3D forward and back-projection method for X-ray CT using separable footprint," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med*, Winner of poster award., 2009, 146–9.
- [141] S. Y. Chun and J. A. Fessler, "Spatial resolution and noise properties of regularized motion-compensated image reconstruction," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2009, 863–6.
- [140] W. Huh and J. A. Fessler, "Model-based image reconstruction for dual-energy X-ray CT with fast kVp switching," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2009, 326–9.
- [139] D. Ruan, S. Esedoglu, and J. A. Fessler, "Discriminative sliding preserving regularization in medical image registration," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2009, 430–3.
- [138] M. Abella and J. A. Fessler, "A new statistical image reconstruction algorithm for polyenergetic X-ray CT," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2009, 165–8.
- [137] R. Bhagalia, J. A. Fessler, B. Kim, and C. R. Meyer, "Improved fMRI time-series registration using joint probability density priors," in *Proc. SPIE 7259 Medical Imaging: Image Proc.*, 2009, 72590J.
- [136] S. Y. Chun, J. A. Fessler, and M. L. Kessler, "A simple penalty that encourages local invertibility and considers sliding effects for respiratory motion," in *Proc. SPIE 7259 Medical Imaging: Image Proc.*, 2009, 72592U.
- [135] S. Y. Chun and J. A. Fessler, "Joint image reconstruction and nonrigid motion estimation with a simple penalty that encourages local invertibility," in *Proc. SPIE 7258 Medical Imaging: Phys. Med. Im.*, 2009, 72580U.
- [134] D. J. Lingenfelter, J. A. Fessler, and Z. He, "Sparsity regularization for image reconstruction with Poisson data," in *Proc. SPIE 7246 Computational Imaging VII*, 2009, 72460F.

- [133] D. Ruan, J. A. Fessler, and S. Esedoglu, “Discontinuity preserving regularization for modeling sliding effects in medical image registration,” in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2008, 5304–8.
- [132] D. T. B. Yeo, J. A. Fessler, and B. Kim, “Motion robust magnetic susceptibility and field inhomogeneity estimation using regularized image restoration techniques for fMRI,” in *Medical Image Computing and Computer-Assisted Intervention*, vol. LNCS-5421, 2008, 991–8.
- [131] S. Chun and J. A. Fessler, “Regularized methods for topology-preserving smooth nonrigid image registration using b-spline basis,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2008, 1099–102.
- [130] J. A. Fessler, “Tradeoffs and complexities in model-based MR image reconstruction,” in *Proc. ISMRM Imaging Strategies Course*, 2008.
- [129] J. Noh, J. A. Fessler, and P. E. Kinahan, “Low-dose dual-energy computed tomography for PET attenuation correction with statistical sinogram restoration,” in *Proc. SPIE 6913 Medical Imaging: Phys. Med. Im.*, 2008, 691312:1–10.
- [128] J. Valenzuela and J. A. Fessler, “Regularized estimation of Stokes images from polarimetric measurements,” in *Proc. SPIE 6814 Computational Imaging VI*, 2008, 681403:1–10.
- [127] D. Ruan, J. A. Fessler, and J. M. Balter, “Objective characterization, estimation and prediction for modeling breathing-related movement,” in *Proc. Amer. Assoc. Phys. Med.*, 2007, 2546–7.
- [126] R. Zeng, J. M. Balter, and J. A. Fessler, “Iterative sorting for 4D CT images based on internal anatomic motion,” in *Proc. Amer. Assoc. Phys. Med.*, 2007, p. 2388.
- [125] J. A. Fessler and D. C. Noll, “Model-based MR image reconstruction with compensation for through-plane field inhomogeneity,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, Invited paper., 2007, 920–3.
- [124] A. Funai, J. A. Fessler, W. Grissom, and D. C. Noll, “Regularized B1+ map estimation in MRI,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2007, 616–9.
- [123] K. A. Khalsa and J. A. Fessler, “Resolution properties in regularized dynamic MRI reconstruction,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2007, 456–9.
- [122] R. Zeng, J. A. Fessler, and J. M. Balter, “Iterative sorting for 4D CT images based on internal anatomy motion,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2007, 744–7.
- [121] R. Narayanan, J. A. Fessler, B. Ma, and C. R. Meyer, “Local mismatch location and spatial scale detection in image registration,” in *Proc. SPIE 6512 Medical Imaging: Image Proc.*, 2007, 65121X:1–8.
- [120] R. Zeng, J. A. Fessler, and J. M. Balter, “A simplified motion model for estimating respiratory motion from orbiting views,” in *Proc. SPIE 6512 Medical Imaging: Image Proc.*, 2007, 651240:1–8.
- [119] Y. Zhang-O’Connor and J. A. Fessler, “Fast variance predictions for 3D cone-beam CT with quadratic regularization,” in *Proc. SPIE 6510 Medical Imaging: Phys. Med. Im.*, 2007, 65105W:1–10.
- [118] H. Shi and J. A. Fessler, “Quadratic regularization design for 3D axial CT,” in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 2006, 2834–6.
- [117] R. Bhagalia, J. A. Fessler, and B. Kim, “Gradient based image registration using importance sampling,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2006, 446–9.
- [116] J. A. Fessler, D. Yeo, and D. C. Noll, “Regularized fieldmap estimation in MRI,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2006, 706–9.
- [115] M. W. Jacobson and J. A. Fessler, “Joint estimation of respiratory motion and activity in 4D PET using CT side information,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2006, 275–8.
- [114] V. Olafsson, J. A. Fessler, and D. C. Noll, “Spatial resolution analysis of iterative image reconstruction with separate regularization of real and imaginary parts,” in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2006, 5–8.



- [113] A. Yendiki and J. A. Fessler, "Analysis of unknown-location signal detectability for regularized tomographic image reconstruction," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2006, 279–83.
- [112] D. Ruan, J. A. Fessler, M. Roberson, J. Balter, and M. Kessler, "Nonrigid registration using regularization that accommodates local tissue rigidity," in *Proc. SPIE 6144 Medical Imaging: Image Proc.*, 2006, 614412:1–9.
- [111] B. De Man, S. Basu, J.-B. Thibault, J. Hsieh, J. A. Fessler, C. Bouman, and K. Sauer, "A study of different minimization approaches for iterative reconstruction in X-ray CT," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 5, 2005, 2708–10.
- [110] B. Feng, M. A. King, H. C. Gifford, G. L. Zeng, and J. A. Fessler, "Modeling the distance-dependent blurring in transmission imaging in the ordered-subset transmission (OSTR) algorithm by using an unmatched projector/Backprojector pair," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 5, 2005, 2960–4.
- [109] H. Shi and J. A. Fessler, "Quadratic regularization design for 3d cylindrical PET," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2005, 2301–5.
- [108] S. Srivastava and J. A. Fessler, "Simplified statistical image reconstruction algorithm for polyenergetic X-ray CT," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 2005, 1551–5.
- [107] R. Zeng, J. A. Fessler, and J. M. Balter, "Estimating 3D respiratory motion from orbiting views," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2005, 2399–403.
- [106] Y. Zhang, J. A. Fessler, and J. Hsieh, "Fast variance image predictions for quadratically regularized statistical image reconstruction in fan-beam tomography," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2005, 1929–33.
- [105] J. A. Fessler, S. Y. Chun, J. E. Huggins, and S. P. Levine, "Detection of event-related spectral changes in electrocorticograms," in *Proc. IEEE EMBS Conf. on Neural Engin.*, 2005, 269–72.
- [104] B. Feng, J. A. Fessler, and M. A. King, "Incorporation of the detector resolution compensation (DRC) in the ordered-subset transmission (OSTR) algorithm for transmission imaging in SPECT," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 2005, 384–7.
- [103] M. W. Jacobson and J. A. Fessler, "Fast interpolation operations in non-rigid image registration," in *Proc. SPIE 5747 Medical Imaging: Image Proc.*, 2005, 764–74.
- [102] H. Shi and J. A. Fessler, "Quadratic regularization design for fan beam transmission tomography," in *Proc. SPIE 5747 Medical Imaging: Image Proc.*, 2005, 2023–33.
- [101] S. Ahn, J. A. Fessler, D. Blatt, and A. O. Hero, "Incremental surrogates algorithms: Application to transmission tomography," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 5, 2004, 2835–9.
- [100] Y. Dewaraja, M. Ljungberg, and J. A. Fessler, "3-D Monte Carlo-based scatter compensation in quantitative I-131 SPECT reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 6, 2004, 3653–7.
- [99] B. Feng, J. A. Fessler, P. H. Pretorius, G. Boening, R. D. Beach, G. L. Zeng, and M. A. King, "Transmission imaging with axially overlapping cone-beams," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 6, 2004, 3716–20.
- [98] P. Kinahan, J. A. Fessler, A. Alessio, and T. K. Lewellen, "Quantitative attenuation correction for PET/CT using iterative reconstruction of low-dose dual-energy CT," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 5, 2004, 3285–9.
- [97] K. Lee, P. E. Kinahan, R. S. Miyaoka, J. A. Fessler, and T. K. Lewellen, "Noise characteristics of the FORE+OSEM(DB) reconstruction method for the MiCES PET scanner," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2004, 2642–6.

- [96] A. Yendiki and J. A. Fessler, "Analysis of observer performance in detecting signals with location uncertainty for regularized tomographic image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2004, 2620–4.
- [95] D. T. B. Yeo, J. A. Fessler, and B. Kim, "Motion correction in fMRI by mapping slice-to-volume with concurrent field-inhomogeneity correction," in *Medical Image Computing and Computer-Assisted Intervention*, vol. LNCS-3217, 2004, 752–60.
- [94] J. A. Fessler and S. Sotthivirat, "Simplified digital holographic reconstruction using statistical methods," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 3, 2004, 2435–8.
- [93] J. A. Fessler and D. C. Noll, "Iterative image reconstruction in MRI with separate magnitude and phase regularization," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2004, 209–12.
- [92] S. Ahn, J. A. Fessler, T. E. Nichols, and R. A. Koeppe, "Covariance of kinetic parameter estimators based on time activity curve reconstructions: Preliminary study on 1D dynamic imaging," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2004, 368–71.
- [91] S. Srivastava and J. A. Fessler, "Penalized likelihood transmission image reconstruction: Unconstrained monotonic algorithms," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2004, 748–51.
- [90] A. Yendiki and J. A. Fessler, "Analytical approach to channelized Hotelling observer performance for regularized tomographic image reconstruction," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2004, 360–3.
- [89] R. Zeng, J. A. Fessler, and J. Balter, "Respiratory motion estimation from slowly rotating X-ray projections," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2004, 480–3.
- [88] Y. Zhang and J. A. Fessler, "Fourier-based forward and back-projectors in iterative fan-beam tomographic image reconstruction," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2004, 364–7.
- [87] A. Hero, M. Ting, and J. A. Fessler, "Two state Markov modelling and detection of single electron spin signals," in *EUSIPCO*, 2004.
- [86] S. Sotthivirat and J. A. Fessler, "Reconstruction from digital holograms by statistical methods," in *Proc., IEEE Asilomar Conf. on Signals, Systems, and Comp.*, 2003, 1928–32.
- [85] C. Y. Yip, A. O. Hero, D. Rugar, and J. A. Fessler, "Baseband detection of bistatic electron spin signals in magnetic resonance force microscopy," in *Proc., IEEE Asilomar Conf. on Signals, Systems, and Comp.*, 2003, 1309–13.
- [84] I. A. Elbakri, Y. Zhang, L. M. Chen, N. Clinthorne, and J. A. Fessler, "Statistical reconstruction for quantitative CT applications," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2003, 2978–80.
- [83] K. F. Koral, A. Yendiki, Q. Lin, Y. K. Dewaraja, and J. A. Fessler, "Update on HE vs UHE collimation for focal total-activity quantification in I-131 SPECT using 3D OSEM," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2003, 2910–13.
- [82] S. Ahn and J. A. Fessler, "Statistical emission image reconstruction for randoms-precorrected PET scans using negative sinogram values," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 5, 2003, 3062–6.
- [81] M. W. Jacobson and J. A. Fessler, "Joint estimation of image and deformation parameters in motion-corrected PET," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 5, 2003, 3290–4.
- [80] K. S. Lee, P. E. Kinahan, J. A. Fessler, T. K. Lewellen, and R. S. Miyaoka, "Pragmatic image reconstruction for the MiCES fully-3D mouse imaging PET scanner," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2003, 2566–70.
- [79] J. A. Fessler, "Analytical approach to regularization design for isotropic spatial resolution," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 2003, 2022–6.

- [78] A. Yendiki and J. A. Fessler, "A comparison of rotation- and blob-based system models for 3-D SPECT with depth-dependent detector response," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 2003.
- [77] M. W. Jacobson and J. A. Fessler, "Joint estimation of image and deformation parameters in tomographic image reconstruction," in *IEEE Workshop on Statistical Signal Processing*, 2003, 149–52.
- [76] I. A. Elbakri and J. A. Fessler, "Efficient and accurate likelihood for iterative image reconstruction in X-ray computed tomography," in *Proc. SPIE 5032 Medical Imaging: Image Proc.*, 2003, 1839–50.
- [75] C. W. Stearns and J. A. Fessler, "3D PET reconstruction with FORE and WLS-OS-EM," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2002, 912–5.
- [74] J. W. Stayman and J. A. Fessler, "Fast methods for approximation of resolution and covariance for SPECT," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2002, 786–8.
- [73] S. Matej and J. A. Fessler, "Iterative tomographic image reconstruction using Fourier-based forward and back-projectors," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 2002, 1701–5.
- [72] J. Nuyts and J. A. Fessler, "Comparison between penalized-likelihood image reconstruction for uniform spatial resolution and post-smoothed ML-EM," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2002, 895–9.
- [71] J. A. Fessler and A. Yendiki, "Channelized Hotelling observer performance for penalized-likelihood image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2002, 1040–4.
- [70] B. P. Sutton, D. C. Noll, and J. A. Fessler, "Fast, iterative, field-corrected image reconstruction for MRI," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2002, 489–92.
- [69] S. Soththivirat and J. A. Fessler, "Relaxed ordered subsets algorithm for image restoration of confocal microscopy," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2002, 1051–4.
- [68] J. Kim and J. A. Fessler, "Image registration using robust correlation," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2002, 353–6.
- [67] I. A. Elbakri and J. A. Fessler, "Segmentation-free statistical image reconstruction for polyenergetic X-ray computed tomography," in *Proc. IEEE Intl. Symp. Biomed. Imag.*, 2002, 828–31.
- [66] J. A. Fessler, I. Elbakri, P. Sukovic, and N. H. Clinthorne, "Maximum-likelihood dual-energy tomographic image reconstruction," in *Proc. SPIE 4684 Medical Imaging: Image Proc.*, vol. 1, 2002, 38–49.
- [65] J. W. Stayman and J. A. Fessler, "Nonnegative definite quadratic penalty design for penalized-likelihood reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2001, 1060–3.
- [64] K. Koral, Q. Lin, A. Akhtar, Y. Dewaraja, and J. A. Fessler, "Effect of including detector response in SPECT quantification of focal <sup>131</sup>I activity," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2001, 2179–82.
- [63] M. Jacobson and J. A. Fessler, "Simultaneous estimation of attenuation and activity images using optimization transfer," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 2001, 2085–9.
- [62] S. Ahn and J. A. Fessler, "Globally convergent ordered subsets algorithms: Application to tomography," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2001, 1064–8.
- [61] J. A. Fessler and B. P. Sutton, "A min-max approach to the multidimensional nonuniform FFT: Application to tomographic image reconstruction," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 1, 2001, 706–9.
- [60] B. P. Sutton, J. A. Fessler, and D. Noll, "Iterative MR image reconstruction using sensitivity and inhomogeneity field maps," in *Proc. Intl. Soc. Mag. Res. Med.*, 2001, p. 771.
- [59] B. P. Sutton, J. A. Fessler, and D. Noll, "A min-max approach to the nonuniform N-D FFT for rapid iterative reconstruction of MR images," in *Proc. Intl. Soc. Mag. Res. Med.*, 2001, p. 763.

- [58] A. Ghanei, H. Soltanian-Zadeh, K. Elisevich, and J. A. Fessler, "A knowledge-based deformable surface model with application to segmentation of brain structures in MRI," in *Proc. SPIE 4322 Medical Imaging: Image Proc.*, vol. 1, 2001, 356–65.
- [57] I. Elbakri and J. A. Fessler, "Statistical x-ray computed tomography image reconstruction with beam-hardening correction," in *Proc. SPIE 4322 Medical Imaging: Image Proc.*, vol. 1, 2001, 1–12.
- [56] D. F. Yu and J. A. Fessler, "Three-dimensional non-local edge-preserving regularization for PET transmission reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2000, 15, 66–15, 70.
- [55] M. Yavuz and J. A. Fessler, "Maximum likelihood emission image reconstruction for randoms-precorrected PET scans," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2000, 15, 229–15, 233.
- [54] S. J. Wilderman, N. H. Clinthorne, J. A. Fessler, C.-H. Hua, and W. L. Rogers, "List mode EM reconstruction of Compton scatter camera images in 3-D," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 2000, 15, 292–15, 295.
- [53] S. Sotthivirat and J. A. Fessler, "Partitioned separable paraboloidal surrogate coordinate ascent algorithm for image restoration," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 1, 2000, 109–12.
- [52] H. Erdogan and J. A. Fessler, "Algorithms for joint estimation of attenuation and emission images in PET," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, vol. 6, 2000, 3783–6.
- [51] H. Erdogan and J. A. Fessler, "Joint estimation of attenuation and emission images from PET scans," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1999, 1672–5.
- [50] D. F. Yu and J. A. Fessler, "Mean and variance of photon counting with deadtime," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1999, 1470–4.
- [49] S. J. Wilderman, J. A. Fessler, N. H. Clinthorne, and W. L. Rogers, "Improved modeling of system response in list mode EM reconstruction of Compton scatter camera images," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1999, 1052–6.
- [48] J. A. Fessler, D. F. Yu, and E. P. Ficaro, "Maximum likelihood transmission image reconstruction for overlapping transmission beams," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1999, 845–9.
- [47] A. Sauve, A. O. Hero, W. L. Rogers, and J. A. Fessler, "Image reconstruction for 3D electronically collimated SPECT camera model," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 1999, 285–8.
- [46] J. W. Stayman and J. A. Fessler, "Penalty design for uniform spatial resolution in 3d penalized-likelihood image reconstruction," in *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, 1999, 361–4.
- [45] S. J. Wilderman, N. H. Clinthorne, J. A. Fessler, and W. L. Rogers, "List mode maximum likelihood reconstruction of Compton scatter camera images in nuclear medicine," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1998, 1716–20.
- [44] H. Erdogan and J. A. Fessler, "Scan time optimization for post-injection PET scans," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1998, 1842–6.
- [43] H. Erdogan, G. Gualtieri, and J. A. Fessler, "An ordered subsets algorithm for transmission tomography," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, Inadvertently omitted from proceedings. Available from web page., 1998.
- [42] C. Comtat, P. E. Kinahan, J. A. Fessler, T. Beyer, D. W. Townsend, M. Defrise, and C. Michel, "Reconstruction of 3d whole-body PET data using blurred anatomical labels," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1998, 1651–5.
- [41] J. A. Fessler and H. Erdogan, "A paraboloidal surrogates algorithm for convergent penalized-likelihood emission image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1998, 1132–5.

- [40] D. F. Yu and J. A. Fessler, "Edge-preserving tomographic reconstruction with nonlocal regularization," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 1, 1998, 29–33.
- [39] J. W. Stayman and J. A. Fessler, "Spatially-variant roughness penalty design for uniform resolution in penalized-likelihood image reconstruction," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 2, 1998, 685–9.
- [38] H. Erdogan and J. A. Fessler, "Accelerated monotonic algorithms for transmission tomography," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 2, 1998, 680–4.
- [37] J. A. Fessler, "Approximate variance images for penalized-likelihood image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1997, 949–52.
- [36] J. A. Fessler, "Preconditioning methods for shift-variant image reconstruction," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 1, 1997, 185–8.
- [35] J. A. Fessler, "Grouped coordinate descent algorithms for robust edge-preserving image restoration," in *Proc. SPIE 3170 Im. Recon. and Restor. II*, 1997, 184–94.
- [34] S. Titus, A. O. Hero, and J. A. Fessler, "Penalized likelihood emission image reconstruction with uncertain boundary information," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, vol. 4, 1997, 2813–6.
- [33] Y. Zhang, J. A. Fessler, N. H. Clinthorne, and W. L. Rogers, "Experimental evaluation for joint estimation approach," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1996, 1623–27.
- [32] M. Yavuz and J. A. Fessler, "Objective functions for tomographic reconstruction from randoms-precorrected PET scans," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1996, 1067–71.
- [31] C.-Y. Ng, N. H. Clinthorne, J. A. Fessler, A. O. Hero, Y. Zhang, and W. L. Rogers, "Preliminary studies on the feasibility of addition of vertex view to conventional brain SPECT," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1996, 1057–61.
- [30] P. E. Kinahan, J. A. Fessler, and J. S. Karp, "Statistical image reconstruction methods in PET with compensation for missing data," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1996, 1486–90.
- [29] H. Erdogan and J. A. Fessler, "Statistical image reconstruction methods for simultaneous emission/transmission PET scans," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1996, 1579–83.
- [28] J. A. Fessler and E. P. Ficaro, "Fully 3D PET image reconstruction using a Fourier preconditioned conjugate-gradient algorithm," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1996, 1599–1602.
- [27] S. R. Titus, A. O. Hero, and J. A. Fessler, "Improved penalized likelihood reconstruction of anatomically correlated emission data," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 2, 1996, 749–52.
- [26] P. C. Chiao, J. A. Fessler, K. R. Zasadny, and R. L. Wahl, "Spectral analysis using regularized non-negative least-squares estimation," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1995, 1680–3.
- [25] J. A. Fessler, E. P. Ficaro, N. H. Clinthorne, and K. Lange, "Fast parallelizable algorithms for transmission image reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1995, 1346–50.
- [24] S. D. Booth and J. A. Fessler, "Combined diagonal/Fourier preconditioning methods for image reconstruction in emission tomography," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 2, 1995, 441–4.
- [23] Y. Zhang, J. A. Fessler, N. H. Clinthorne, and W. L. Rogers, "Incorporating MRI region information into SPECT reconstruction using joint estimation," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, vol. 4, 1995, 2307–10.
- [22] S. R. Titus, A. O. Hero, and J. A. Fessler, "NMR object boundaries: B-spline modeling and estimator performance," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, vol. 4, 1995, 2423–6.

- [21] J. A. Fessler, "Moments of implicitly defined estimators (e.g. ML and MAP): applications to transmission tomography," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, vol. 4, 1995, 2291–4.
- [20] M. Usman, A. O. Hero, and J. A. Fessler, "Bias-variance tradeoffs analysis using uniform CR bound for image reconstruction," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 2, 1994, 835–9.
- [19] J. A. Fessler, "A mixture-site model for edge-preserving image restoration," in *Proc. IEEE Intl. Conf. on Image Processing*, vol. 3, 1994, 162–6.
- [18] Y. Zhang, J. A. Fessler, N. H. Clinthorne, and W. L. Rogers, "Joint estimation for incorporating MRI anatomic images into SPECT reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1994, 1256–60.
- [17] M. Usman, A. O. Hero, and J. A. Fessler, "Uniform CR bound: Implementation issues and applications," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1994, 1443–7.
- [16] J. A. Fessler and W. L. Rogers, "Uniform quadratic penalties cause nonuniform image resolution (and sometimes vice versa)," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 4, 1994, 1915–9.
- [15] M. Usman, A. O. Hero, J. A. Fessler, and W. L. Rogers, "Bias-variance tradeoffs analysis using uniform CR bound for a SPECT system," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1993, 1463–7.
- [14] E. P. Ficaro and J. A. Fessler, "Iterative reconstruction of truncated fan beam transmission data," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, 1993.
- [13] J. A. Fessler and A. O. Hero, "New complete-data spaces and faster algorithms for penalized-likelihood emission tomography," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1993, 1897–901.
- [12] J. A. Fessler and A. O. Hero, "Cramer-Rao lower bounds for biased image reconstruction," in *Proc. Midwest Symposium on Circuits and Systems*, vol. 1, 1993, 253–6.
- [11] S. Minoshima, R. A. Koeppe, J. A. Fessler, M. A. Mintun, K. L. Berger, S. F. Taylor, and D. E. Kuhl, "Integrated and automated data analysis method for neuronal activation studies using O-15 water PET," in *Quantification of brain function, Tracer kinetics and image analysis in brain PET*, K. Uemura *et al.*, Eds., Elsevier, 1993, pp. 409–17.
- [10] J. A. Fessler and A. O. Hero, "Complete-data spaces and generalized EM algorithms," in *Proc. IEEE Conf. Acoust. Speech Sig. Proc.*, vol. 4, 1993, 1–4.
- [9] A. O. Hero, J. A. Fessler, and W. L. Rogers, "A fast recursive algorithm for computing CR-type bounds for image reconstruction problems," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1992, 1188–90.
- [8] J. A. Fessler, "Segmented attenuation correction for PET using ICM," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1992, 1182–4.
- [7] J. A. Fessler, "Hidden data spaces for maximum-likelihood PET reconstruction," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 2, 1992, 898–900.
- [6] N. H. Clinthorne, J. A. Fessler, G. D. Hutchins, and W. L. Rogers, "Joint maximum likelihood estimation of emission and attenuation densities in PET," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1991, 1927–32.
- [5] J. A. Fessler, N. H. Clinthorne, and W. L. Rogers, "Regularized emission image reconstruction using imperfect side information," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1991, 1991–5.
- [4] J. A. Fessler, W. L. Rogers, and N. H. Clinthorne, "Robust maximum-likelihood position estimation in scintillation cameras," in *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, vol. 3, 1991, 1851–4.
- [3] J. A. Fessler, D. G. Nishimura, and A. Macovski, "Model-based 3-D reconstruction of branching vessels," in *Proc. Int'l. Conf. IEEE Engr. in Med. and Biol. Soc.*, 1989, 561–2.

- [2] J. A. Fessler and A. Macovski, “3-D reconstruction of vessels with stenoses and aneurysms from dual bi-plane angiograms,” in *Proc. SPIE 1092 Med. Im. III: Im. Proc.*, 1989, 22–32.
- [1] J. Kuehn, J. A. Fessler, and H. Siegel, “Parallel image thinning and vectorization on PASM,” in *Proc. IEEE Conf. on Comp. Vision and Pattern Recognition*, 1985, 368–74.

### Conference Abstracts

- [355] J. Manassa, J. Schwartz, . J. Oh, Z. W. Di, Y. Jiang, H. Zheng, J. A. Fessler, Y. Yang, and \*. R. Hovden, “Recovering stoichiometry via multi-modal fused electron tomography,” in *Microscopy and Microanalysis*, Submitted, 2024.
- [354] T. Hong, L. Hernandez-Garcia, and J. A. Fessler, “A fast double stochastic proximal method for CS-MRI reconstruction with multiple wavelets,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2024, p. 4999.
- [353] A. Murguia, S. Swanson, U. Scheven, J.-F. Nielsen, J. A. Fessler, and N. Seraji-Bozorgzad, “Characterizing tissue relaxation and magnetization transfer in fresh, thawed, and fixed white matter tissue samples,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2024, p. 2036.
- [352] H. Xiang, I. K. Onder, A. H. Mehta, J. A. Fessler, and D. C. Noll, “Joint optimization of multi-echo reconstruction and quantitative map estimation in looping star,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2024, p. 0630.
- [351] J. Yang, J. E. Fajardo, J. A. Fessler, V. Gulani, J.-F. Nielsen, and Y. Jiang, “Calibration-free multidimensional universal refocusing pulse design for 3D reduced field-of-view prostate imaging,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2024, p. 4094.
- [350] J. A. Fessler, “JuliaImageRecon: efficient, reproducible and open-source image reconstruction,” in *SIAM Conf. Imaging Sci., Abstract Book*, Invited talk, 2024.
- [349] X. Xu, M. Klasky, M. T. McCann, and J. A. Fessler, “Swap-Net: A memory-efficient 2.5D cascade network for 3D image reconstruction,” in *ei-24*, 2024.
- [348] A. Murguia, S. Swanson, U. Scheven, J.-F. Nielsen, J. A. Fessler, and N. Seraji-Bozorgzad, “Characterizing tissue relaxation in fresh and fixed white matter tissue samples,” in *ISMRM White Matter Workshop*, 2023.
- [347] J. A. Fessler, J. A. S. Cavazos, and R. Lobos, “Dynamic MRI reconstruction with locally low-rank regularizers,” in *BIRS Leveraging Model- and Data-Driven Methods in Medical Imaging*, Invited presentation., 2023.
- [346] J. A. Fessler, R. Lobos, and J. A. S. Cavazos, “Accelerated optimization for dynamic MRI reconstruction with locally low-rank regularizers,” in *SIAM Conf. Optim.*, Invited presentation., 2023.
- [345] A. Murguia, S. Swanson, U. Scheven, J.-F. Nielsen, J. A. Fessler, and N. Seraji-Bozorgzad, “Exploring myelin in post-mortem tissue in Alzheimer’s disease: A high-field MR study,” in *Beyond Amyloid Research Symposium*, 2023.
- [344] S. J. Peltier, K. Han, B. M. Hampstead, J. A. Fessler, and Z. Li, “Deep learning for prediction of mild cognitive impairment and dementia of the Alzheimer’s type,” in *Beyond Amyloid Research Symposium*, 2023.
- [343] X. Xu, J. A. Fessler, M. Klasky, G. S. Sidharth, J. L. Schei, and M. T. McCann, “An end-to-end learning approach for subpixel feature extraction,” in *Optica Imaging Congress*, 2023.
- [342] J. Manassa, J. Schwartz, Y. Jiang, H. Zheng, J. A. Fessler, Z. W. Di, and R. Hovden, “Dose requirements for fused multi-modal electron tomography,” in *Microscopy and Microanalysis*, vol. 29, 2023, 1968–9.
- [341] J. Schwartz, W. D. Zichao, Y. Jiang, Y. Qian, M. G. Cho, S. Rozeveld, P. Ercius, J. A. Fessler, T. Xu, M. Scott, and R. Hovden, “Measuring 3D chemistry at 1 nm resolution with fused multi-modal electron tomography,” in *Intl. Microscopy Cong.*, Submitted, 2023.

- [340] J. Schwartz, Z. W. Di, Y. Jiang, M. G. Cho, Y. Qian, J. Gu, S. Rozeveld, P. Ercius, J. A. Fessler, T. Xu, M. Scott, and R. Hovden, “Measuring 3D chemistry at 1 nm resolution with fused multi-modal electron tomography,” in *Microscopy and Microanalysis*, vol. 29S1, 2023, 1394–5.
- [339] Y. Jia, Z. Li, J. A. Fessler, and Y. Dewaraja, “Y-90 Bremsstrahlung SPECT scatter estimation and voxel dosimetry using a deep learning pipeline,” *J. Nuc. Med. (Abs. Book)*, vol. 64, no. S1, P1211, Jun. 2023.
- [338] Z. Li, X. Xu, J. Hu, J. A. Fessler, and Y. Dewaraja, “Reducing SPECT acquisition time by predicting missing projections with single-scan self-supervised coordinate-based learning,” *J. Nuc. Med. (Abs. Book)*, vol. 64, no. S1, P1014, Jun. 2023.
- [337] D. Frey, J. A. Fessler, D. Noll, and L. Hernandez-Garcia, “Fast, isotropic, whole head perfusion imaging using a Spin Echo Rotating In-Out Spiral with velocity selective arterial spin labeling (SERIOS VSASL),” in *Proc. Intl. Soc. Mag. Res. Med.*, 2023, p. 2749.
- [336] T. Hong, J. A. Fessler, and L. Hernandez-Garcia, “Complex quasi-Newton proximal methods for image reconstruction in compressed sensing MRI,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2023, p. 4953.
- [335] G. Wang, S. Guo, J. A. Fessler, and D. C. Noll, “Fast, model-based, and navigator-free retrospective motion correction for non-Cartesian fMRI,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2023, p. 1824.
- [334] G. Wang, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, “Stochastic optimization of 3D non-Cartesian sampling trajectory (SNOPY),” in *Proc. Intl. Soc. Mag. Res. Med.*, 2023, p. 4801.
- [333] H. Xiang, J. A. Fessler, and D. C. Noll, “Spatial-temporal reconstruction using UNFOLD in looping-star silent fMRI,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2023, p. 2534.
- [332] J. A. Fessler, J. Hu, and X. Xu, “Generalizability (or not?) of patch-based image models,” in *BASP*, Invited presentation., 2023.
- [331] G. Maliakal, A. Lahiri, M. L. Klasky, J. A. Fessler, and S. Ravishankar, “Sparse-view cone beam CT reconstruction using data-consistent supervised and adversarial learning from scarce training data,” in *SlowDNN Workshop*, To appear, 2023.
- [330] G. Wang, J.-F. Nielsen, D. C. Noll, and J. A. Fessler, “Optimizing non-Cartesian sampling patterns via gradient methods,” in *ISMRM Workshop on Data Sampling and Image Reconstruction*, 2023.
- [329] J. L. Block, L. Balzano, C. Scott, and J. A. Fessler, “Super-hePPCAT: supervised probabilistic PCA for data with heteroscedastic noise,” in *Workshop on Statistical Machine Learning*, 2022.
- [328] Z. Li, Y. K. Dewaraja, and J. A. Fessler, “Training end-to-end unrolled iterative neural networks for SPECT image reconstruction: A fast and memory efficient Julia toolbox,” in *IS&T EI HPC for Imaging*, 2023.
- [327] J. A. Fessler and T. Knopp, “Image reconstruction using Julia,” in *MRI Together workshop*, 2022.
- [326] A. Murguia, J.-H. Kim, Y. Zhang, K. Han, Z. Wen, M. Choi, X. Wang, J. A. Fessler, and Z. Liu, “Representation learning of resting state functional magnetic resonance imaging using variational autoencoder with convolutional neural network and transformer,” in *CRCNS Mtg.*, 2022.
- [325] M. Gao, R. K. Samala, J. A. Fessler, and H.-P. Chan, “Deep learning denoising and assessment of detectability of microcalcifications in digital breast tomosynthesis: A task-based image evaluation approach using CNN,” in *Proc. Radiological Soc. N. Amer.*, 2022.
- [324] G. Wang, J. A. Fessler, and D. Noll, “Differentiable MRI: joint data-driven optimization of sampling pattern, model-based reconstruction and more,” in *Gordon Conf. on MR*, 2022.
- [323] J. Schwartz, J. Pietryga, J. Rowell, J. A. Fessler, Y. Jiang, Z. W. Di, R. Robinson, and R. Hovden, “Measuring 3D chemistry with fused multi-modal electron tomography,” in *Microscopy & Microanalysis*, vol. 28, 2022, 2622–4.



- [322] D. Hong, K. Gilman, L. Balzano, and J. A. Fessler, “HePPCAT: probabilistic PCA for data with heteroscedastic noise,” in *IOS2022*, 2022.
- [321] S. Guo, J. A. Fessler, and D. C. Noll, “Voxel-wise temporal attention network and simulation-driven dynamic MRI sequence reconstruction,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2022, p. 4050.
- [320] M. W. Haskell, A. Lahiri, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, “FieldMapNet MRI: Learning-based mapping from single echo time BOLD fMRI data to fieldmaps with model-based reconstruction,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2022, p. 0235.
- [319] N. Murthy, J.-F. Nielsen, S. T. Whitaker, M. W. Haskell, S. D. Swanson, N. Seiberlich, and J. A. Fessler, “Quantifying exchange using optimized bSSFP sequences,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2022, p. 2068.
- [318] G. Wang, D. C. Noll, and J. A. Fessler, “Reconstruction may benefit from tailored sampling trajectories: Optimizing non-Cartesian trajectories for model-based reconstruction,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2022, p. 5011.
- [317] G. Wang, N. Shah, K. Zhu, D. C. Noll, and J. A. Fessler, “MIRTorCh: A pytorch-empowered differentiable [reconstruction] toolbox for fast image reconstruction and scan protocol optimization,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2022, p. 4982.
- [316] S. T. Whitaker, J.-F. Nielsen, and J. A. Fessler, “Intravoxel B0 corrected image reconstruction with RF prephasing,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2022, p. 2340.
- [315] S. T. Whitaker, J.-F. Nielsen, and J. A. Fessler, “End-to-end scan parameter optimization for improved myelin water imaging,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2022, p. 1273.
- [314] H. Xiang, J. A. Fessler, and D. C. Noll, “Model-based image reconstruction in looping-star MRI,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2022, p. 2346.
- [313] M. L. Klasky, A. Lahiri, J. A. Fessler, S. Ravishankar, M. Espy, M. T. McCann, T. Wilcox, and A. Khatiwada, “Limited-view cone beam CT reconstruction using 3D patch-based supervised and adversarial learning: Validation using hydrodynamic simulations and experimental tomographic data,” in *Machine Learning for Scientific Imaging*, 2022.
- [312] J. A. Fessler, “MIRT: Hands on / Interactive session,” in *MRI Together workshop*, 2021.
- [311] M. Gao, J. A. Fessler, and H.-P. Chan, “Plug-and-play reconstruction with deep learning denoising for improving detectability of microcalcifications in digital breast tomosynthesis images,” in *Proc. Radiological Soc. N. Amer.*, To appear, 2021.
- [310] A. Lahiri, M. L. Klasky, J. A. Fessler, and S. Ravishankar, “Limited-view cone beam CT reconstruction using 3D patch-based supervised and adversarial learning,” in *OSA Imaging and Applied Optics Congress*, 2021.
- [309] K. Gilman, D. Hong, L. Balzano, and J. A. Fessler, “HePPCAT: Probabilistic PCA for data with heteroscedastic noise,” in *MSSISS*, 2021.
- [308] V. Nwadeyi, J. Polf, J. A. Fessler, and Z. He, “Region of interest image reconstruction for range verification for proton beam therapy using 3-D position sensitive CdZnTe,” in *UM Grad. Symp.*, 2021.
- [307] A. Lahiri, G. Wang, S. Ravishankar, and J. A. Fessler, “Blind primed supervised (BLIPS) learning for MR image reconstruction,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2021, p. 0279.
- [306] A. Lahiri, J. A. Fessler, and L. Hernandez-Garcia, “Perfusion quantification using velocity selective inversion pulses in a combined ASL-MRF framework,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2021, p. 2719.
- [305] T. Luo, D. C. Noll, J. A. Fessler, and J.-F. Nielsen, “Multi-scale accelerated auto-differentiable Bloch-simulation based joint design of excitation RF and gradient waveforms,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2021, p. 3958.

- [304] J.-F. Nielsen, B. Bilgic, J. P. Stockmann, B. Gagoski, Y. G. Chiou, L. Ning, Y. Ji, Y. Rathi, J. A. Fessler, D. C. Noll, and M. Zaitsev, "An open toolbox for harmonized B0 shimming," in *Proc. Intl. Soc. Mag. Res. Med.*, 2021, p. 3772.
- [303] G. Wang, T. Luo, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, "B-spline parameterized joint optimization of reconstruction and K-space sampling patterns (BJORK) for accelerated 2D acquisition," in *Proc. Intl. Soc. Mag. Res. Med.*, 2021, p. 0833.
- [302] G. Wang, D. C. Noll, and J. A. Fessler, "Efficient NUFFT backpropagation for stochastic sampling optimization," in *Proc. Intl. Soc. Mag. Res. Med.*, 2021, p. 0913.
- [301] J. A. Fessler, "Computational imaging using Julia," in *IST EI Computational Imaging XIX*, Invited, 2021.
- [300] S. Guo, J. A. Fessler, and D. C. Noll, "Local tensor low-rank for multi-slice GRE fMRI acceleration," in *Midwest MRI Potluck*, 2020.
- [299] T. Luo, D. C. Noll, J. A. Fessler, and J.-F. Nielsen, "Joint design of RF and gradient waveforms via auto-differentiation for 3D tailored excitation," in *Midwest MRI Potluck*, 2020.
- [298] S. Guo, J. A. Fessler, and D. C. Noll, "Oscillating steady state imaging (OSSI) for fMRI using 3D sparse acquisition and model-based image reconstruction," in *BRAIN PI Meeting*, 2020.
- [297] C. Y. Lin, D. Noll, and J. A. Fessler, "A temporal model for task-based functional MRI reconstruction," in *SIAM Conf. Imaging Sci., Abstract Book*, 2020.
- [296] S. Guo, J. A. Fessler, and D. Noll, "High SNR and high-resolution fMRI using 3D OSSI and tensor model reconstruction," in *Proc. Intl. Soc. Mag. Res. Med.*, 2020, p. 3862.
- [295] S. Guo, D. Noll, and J. A. Fessler, "OSSI manifold model for high-resolution fMRI joint reconstruction and quantification," in *Proc. Intl. Soc. Mag. Res. Med.*, 2020, p. 1018.
- [294] A. Lahiri, S. Ravishankar, and J. A. Fessler, "Combining supervised and semi-blind dictionary (Super-BReD) learning for MRI reconstruction," in *Proc. Intl. Soc. Mag. Res. Med.*, 2020, p. 3456.
- [293] S. T. Whitaker, G. Nataraj, J.-F. Nielsen, and J. A. Fessler, "Myelin water imaging using STFR with exchange," in *Proc. Intl. Soc. Mag. Res. Med.*, 2020, p. 1020.
- [292] J. A. Fessler, "The state of image reconstruction in medical CT," in *ISMRM Workshop on Data Sampling and Image Reconstruction*, 2020.
- [291] M. W. Haskell, A. A. Cao, D. C. Noll, and J. A. Fessler, "Deep learning field map estimation with model-based image reconstruction for off resonance correction of brain images using a spiral acquisition," in *ISMRM Workshop on Data Sampling and Image Reconstruction*, 2020.
- [290] D. Hong, L. Balzano, and J. A. Fessler, "Asymptotic eigenstructure of weighted sample covariance matrices for large dimensional low-rank models with heteroscedastic noise," in *Fourth Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI)<sup>4</sup>*, 2019.
- [289] J. A. Fessler, "CT image reconstruction using adaptive signal models," in *Tufts Cormack Workshop*, Invited plenary talk, 2019.
- [288] S. Guo, J. A. Fessler, and D. C. Noll, *High resolution OSS fMRI using tensor patch low-rank plus sparse*, NIH BRAIN meeting, 2019.
- [287] A. Lahiri, J. A. Fessler, and L. Hernandez-Garcia, "Optimizing MRF-ASL scan design for precise quantification of brain hemodynamics," in *ASL Workshop*, 2019.
- [286] H. Kim, S. Y. Chun, J. A. Fessler, and Y. K. Dewaraja, "Joint spectral reconstruction for Y90 bremsstrahlung SPECT using guided filtering," *J. Nuc. Med. (Abs. Book)*, vol. 60, no. s1, p. 43, May 2019.

- [285] H. Kim, S. Y. Chun, J. A. Fessler, and Y. K. Dewaraja, "On enhancing Monte-Carlo scatter correction for Y90 bremsstrahlung SPECT using guided filtering," *J. Nuc. Med. (Abs. Book)*, vol. 60, no. s1, p. 1348, May 2019.
- [284] H. Lim, I. Y. Chun, J. A. Fessler, and Y. K. Dewaraja, "Improved low count quantitative SPECT reconstruction with a trained deep learning based regularizer," *J. Nuc. Med. (Abs. Book)*, vol. 60, no. s1, p. 42, May 2019.
- [283] D. Zhang, Z. Xu, Z. Huang, A. R. Gutierrez, I. Y. Chun, C. J. Blocker, G. Cheng, Z. Liu, J. A. Fessler, Z. Zhong, and T. B. Norris, "Graphene-based transparent photodetector array for multiplane imaging," in *Conf. on Lasers and Electro-Optics*, 2019.
- [282] S. Guo, D. C. Noll, and J. A. Fessler, "Dictionary-based oscillating steady state fMRI reconstruction," in *Proc. Intl. Soc. Mag. Res. Med.*, 2019, p. 1253.
- [281] M. Karker, C. Y. Lin, J. A. Fessler, and D. C. Noll, "Evaluation of sparse sampling approaches for 3D functional MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2019, p. 0370.
- [280] A. Lahiri, J. A. Fessler, and L. Hernandez-Garcia, "Optimizing MRF-ASL scan design towards precise quantification of hemodynamic properties in cerebrovascular disorders," in *Proc. Intl. Soc. Mag. Res. Med.*, 2019, p. 5026.
- [279] J.-F. Nielsen, G. Nataraj, J. A. Fessler, and D. C. Noll, "Routine B0 eddy current measurements with TOPPE for more robust spiral imaging," in *Proc. Intl. Soc. Mag. Res. Med.*, 2019, p. 4511.
- [278] S. T. Whitaker, G. Nataraj, M. Gao, J.-F. Nielsen, and J. A. Fessler, "Myelin water fraction estimation using small-tip fast recovery MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2019, p. 4403.
- [277] S. N. Williams, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, "A simple method for constrained optimal control RF pulse design," in *Proc. Intl. Soc. Mag. Res. Med.*, 2019, p. 4624.
- [276] L. Balzano, D. Hong, and J. A. Fessler, "Optimally weighted PCA for high-dimensional heteroscedastic data," in *Simons Workshop on Robust and High-Dimensional Statistics*, 2018.
- [275] G. Nataraj, M. Gao, J.-F. Nielsen, and J. A. Fessler, "Kernel regression for fast myelin water imaging," in *ISMRM Workshop on Machine Learning Part 2*, 2018, p. 65.
- [274] J. A. Fessler, "Medical image reconstruction using adaptive signal models," in *Machine learning for Medical imaging (MLAMI): Workshop, Univ. of Wisc.*, Invited keynote, 2018.
- [273] H. Lim, J. A. Fessler, and Y. Dewaraja, "Joint dual photopeak image reconstruction in Lu-177 SPECT," in *Proc. EANM*, 2018, S95–6.
- [272] H. Lim, K. Kim, Q. Li, J. A. Fessler, and Y. K. Dewaraja, "Bias reduction in Y-90 PET with reconstruction that relaxes the non-negativity constraint," *J. Nuc. Med. (Abs. Book)*, vol. 59, no. S1, p. 580, May 2018.
- [271] D. Kim and J. A. Fessler, "Optimized first-order method for decreasing the gradient of smooth convex functions," in *KSIAM Annual Meeting*, 2018.
- [270] D. Kim and J. A. Fessler, "Optimized first-order method for decreasing the gradient of smooth convex functions," in *Intl. Symp. Math. Prog.*, Invited talk, 2018.
- [269] I. Y. Chun and J. A. Fessler, "From convolutional analysis operator learning (CAOL) to convolution neural networks (CNN)," in *SIAM Conf. Imaging Sci., Abstract Book*, Invited talk for special session on convolutional sparse representations, 2018.
- [268] C. J. Blocker, I. Y. Chun, and J. A. Fessler, "Low-rank plus sparse tensor models for light-field reconstruction from focal stack data," in *Gordon Res. Conf. on Imaging Science*, Poster., 2018.

- [267] C. J. Blocker, I. Y. Chun, and J. A. Fessler, “Low-rank plus sparse tensor models for light-field reconstruction from focal stack data,” in *Proc. Intl. Conf. Comp. Photography*, Poster., 2018.
- [266] J. A. Fessler, “Limitations and caveats of deep learning,” in *Proc. Intl. Soc. Mag. Res. Med.*, Part of education course on Deep Learning, 2018, E1349.
- [265] A. Lahiri, J. A. Fessler, and L. Hernandez-Garcia, “Optimized scan design for ASL fingerprinting and multiparametric estimation using neural network regression,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2018, p. 309.
- [264] L. Liu, A. Johansson, J. M. Balter, J. A. Fessler, and Y. Cao, “Accelerated high b-value DWI for higher-order diffusion analysis using a phase-constrained low-rank tensor model,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2018, p. 655.
- [263] T. Luo, D. C. Noll, J. A. Fessler, and J.-F. Nielsen, “A fast and general non-cartesian GRAPPA reconstruction method,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2018, p. 2821.
- [262] M. J. Muckley, J. A. Fessler, and M. V. W. Zibetti, “Accelerating non-Cartesian, sparsity-promoting image reconstruction via line search FISTA,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2018, p. 2809.
- [261] S. N. Williams, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, “Slab-selective spectral and spectral-spatial prewinding RF pulses,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2018, p. 1131.
- [260] D. Hong, L. Balzano, and J. A. Fessler, “Optimally weighted PCA for high-dimensional heteroscedastic data,” in *UM MIDAS Symposium*, 2017.
- [259] D. Hong, L. Balzano, and J. A. Fessler, “Optimally weighted PCA for high-dimensional heteroscedastic data,” in *UM Grad. Symp.*, 2017.
- [258] A. Lahiri, J. A. Fessler, and L. Hernandez-Garcia, “Optimized design of MRF scan parameters for ASL signal acquisition,” in *ISMRM Workshop on MR Fingerprinting*, 2017.
- [257] G. Nataraj, M. Gao, J. Asslander, C. Scott, and J. A. Fessler, “Shallow learning with kernels for dictionary-free magnetic resonance fingerprinting,” in *ISMRM Workshop on MR Fingerprinting*, 2017.
- [256] S. N. Williams, J. A. Fessler, and D. C. Noll, “Minimum out-of-slice error SMS RF pulses design with direct peak, power, and in-slice error constraints,” in *Proc. Eur. Soc. Mag. Res. Med. B*, 2017, p. 681.
- [255] H. Lim, N. Clinthorne, M. Conti, J. A. Fessler, and Y. Dewaraja, “Quantitative Y-90 PET for dosimetry in radioembolization,” in *Proc. EANM*, 2017, S398.
- [254] S. Ravishankar and J. A. Fessler, “Data-driven models and approaches for imaging,” in *Proc. OSA Mathematics in Imaging*, 2017.
- [253] H. Lim, Y. K. Dewaraja, S. Wilderman, and J. A. Fessler, “Y-90 SPECT maximum likelihood image reconstruction with a new model for tissue-dependent bremsstrahlung production,” *J. Nuc. Med. (Abs. Book)*, vol. 58, no. s1, p. 746, May 2017.
- [252] D. Hong, L. Balzano, and J. A. Fessler, “Asymptotic performance of PCA for high-dimensional heteroscedastic data,” in *Michigan Student Symposium for Interdisciplinary Statistical Sciences*, 2017.
- [251] D. Hong, L. Balzano, and J. A. Fessler, “Theoretical analysis of PCA for heteroscedastic data,” in *Sig. Proc. with Adapt. Sparse Struct. Rep. SPARS*, 2017.
- [250] G. Nataraj, J.-F. Nielsen, and J. A. Fessler, “Myelin water fraction estimation from optimized steady-state sequences using kernel ridge regression,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2017, p. 5076.
- [249] S. N. Williams, D. C. Noll, and J. A. Fessler, “Improved simultaneous multislice pulse design directly constraining peak RF amplitude,” in *Proc. Intl. Soc. Mag. Res. Med.*, 2017, p. 3854.
- [248] D. Kim and J. A. Fessler, “Improving the optimized gradient method for large-scale convex optimization,” in *SIAM Optimization*, Invited presentation., 2017.

- [247] D. Hong, L. Balzano, and J. A. Fessler, "Predicting the asymptotic performance of rank-1 PCA with heteroscedastic data," in *Michigan Data Science Symposium*, 2016.
- [246] D. Hong, L. Balzano, and J. A. Fessler, "Predicting the asymptotic performance of rank-1 PCA with heteroscedastic data," in *UM Grad. Symp.*, 2016.
- [245] L. Liu, S. Jolly, Y. Cao, K. Vineberg, J. M. Balter, and J. A. Fessler, "Female pelvic synthetic CT generation based on joint shape and intensity analysis," in *UM Grad. Symp.*, 2016.
- [244] S. Williams, D. C. Noll, and J. A. Fessler, "Mitigating RF peak amplitude and power limitations for simultaneous multislice excitation MRI," in *UM Grad. Symp.*, 2016.
- [243] S. N. Williams, J.-F. Nielsen, D. C. Noll, and J. A. Fessler, "Spectral-spatial RF pulse design with direct constraints on peak amplitude and integrated power," in *Gordon Res. Conf. on MRI Inside-Out and Outside-In*, 2016.
- [242] L. Liu, S. Jolly, Y. Cao, K. Vineberg, J. A. Fessler, and J. M. Balter, "Investigation of a female pelvic synthetic CT generation method without ultra-short TE imaging," in *MR in RT Symposium*, 2016.
- [241] D. Hong, J. A. Fessler, and L. Balzano, "A weighted PCA method for subspace estimation from heterogeneous data," in *UM SML Student Workshop*, 2016.
- [240] M. M. B. Holl, M. Cauble, M. Muckley, M. Fang, T. Ahn, S. Vaidyanathan, R. Merzel, J. A. Fessler, K. Welch, E. D. Rothman, B. G. Orr, and L. T. Duong, "AFM & AFM-IR studies of collagen microstructure and chemical composition for estrogen depleted and drug treated cortical bone and lumbar vertebrae," in *American Soc. of Bone and Mineral Research*, 2016, S14.
- [239] M. M. B. Holl, M. Cauble, M. Muckley, M. Fang, T. Ahn, S. Vaidyanathan, R. Merzel, J. A. Fessler, K. Welch, E. D. Rothman, B. G. Orr, and L. T. Duong, "AFM-IR studies of collagen microstructure and chemical composition for estrogen depleted and drug treated cortical bone and lumbar vertebrae," in *SciX2016*, 2016, F14.
- [238] L. Liu, S. Jolly, Y. Cao, K. Vineberg, J. A. Fessler, and J. M. Balter, "Female pelvic synthetic CT generation based on joint shape and intensity analysis," in *Proc. Amer. Assoc. Phys. Med.*, 2016, p. 3343.
- [237] S. Ravishankar, R. R. Nadakuditi, J. A. Fessler, and B. E. Moore, "Efficient dictionary learning models and their application to inverse problems," in *Gordon Res. Conf. on Imaging Science*, 2016.
- [236] X. Zheng, S. Ravishankar, Z. Lu, Y. Long, and J. A. Fessler, "Image reconstruction for low dose X-ray CT using learned overcomplete sparsifying transforms," in *Gordon Res. Conf. on Imaging Science*, 2016.
- [235] S. Ravishankar, R. R. Nadakuditi, and J. A. Fessler, "Efficient dictionary learning methods using sums of outer products (SOUP-DIL)," in *IMA Wkshp. on Optim. and Parsimonious Modeling*, 2016.
- [234] S. Y. Chun, K. Y. Kim, J. S. Lee, and J. A. Fessler, "Transmission tomographic image reconstruction using optimization transfer: Application to joint attenuation / activity image reconstruction for TOF PET," in *Winter School in Imaging Science, A3 Inverse Problem Meeting, Gangwon-Do, South Korea*, Invited, 2016.
- [233] M. G. McGaffin and J. A. Fessler, "Multi-node model-based image reconstruction with GPUs," in *SIAM Conf. Imaging Sci., Abstract Book*, 2016.
- [232] A. Cerjanic, J. L. Holtrop, G.-C. Ngo, B. Leback, G. Arnold, M. Van Moer, G. LaBelle, J. A. Fessler, and B. P. Sutton, "PowerGrid: A open source library for accelerated iterative magnetic resonance image reconstruction," in *Proc. Intl. Soc. Mag. Res. Med.*, 2016, p. 525.
- [231] J. F. Nielsen, H. Sun, J. A. Fessler, and D. C. Noll, "Improved gradient waveforms for small-tip 3D spatially tailored excitation using iterated local search," in *Proc. Intl. Soc. Mag. Res. Med.*, 2016, p. 1013.
- [230] M. J. Muckley, D. C. Noll, and J. A. Fessler, "Fast, iterative subsampled spiral reconstruction via circulant majorizers," in *Proc. Intl. Soc. Mag. Res. Med.*, 2016, p. 521.

- [229] M. J. Muckley, D. C. Noll, and J. A. Fessler, "Majorizer design for non-Cartesian MRI with sparsity-promoting regularization," in *ISMRM Workshop on Data Sampling and Image Reconstruction*, 2016.
- [228] M. J. Muckley, S. J. Peltier, D. C. Noll, and J. A. Fessler, "Improving fMRI scans using low rank modeling," in *UM Grad. Symp.*, 2015.
- [227] S. Williams, D. C. Noll, and J. A. Fessler, "RF pulse design for MRI with direct constraint on peak pulse amplitude," in *UM Grad. Symp.*, 2015.
- [226] Y. Dewaraja, P. Novelli, J. A. Fessler, M. Feng, R. Nelson, J. Rothley, M. Ljungberg, P. Roberson, and S. Wilderman, "Bremsstrahlung SPECT/CT with Monte Carlo scatter estimation vs Y-90 PET/CT with TOF: comparison of quantitative accuracy for dosimetry applications," in *Eur. J. Nuc. Med.*, vol. 42, 2015, S156.
- [225] L. Liu, J. Balter, Y. Cao, S. Jolly, and J. A. Fessler, "Automated bone segmentation to support synthetic CT in the pelvis," in *3rd MR in RT Symposium*, 2015.
- [224] L. Liu, Y. Cao, J. A. Fessler, and J. M. Balter, "Investigation of a pelvic bone shape model in support of bone classification for synthetic CT generation," in *Proc. Amer. Assoc. Phys. Med.*, 2015.
- [223] J. A. Fessler, "Accelerated statistical image reconstruction for X-ray CT," in *ICERM: Computational and Analytical Aspects of Image Reconstruction Workshop*, Invited talk., 2015.
- [222] D. Kim and J. A. Fessler, "Optimized gradient methods for smooth convex minimization," in *Intl. Symp. Math. Prog.*, 2015.
- [221] M. Le and J. A. Fessler, "Spline temporal basis for improved pharmacokinetic parameter estimation in SENSE DCE-MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2015, p. 3698.
- [220] M. J. Muckley, D. C. Noll, and J. A. Fessler, "Momentum optimization for iterative shrinkage algorithms in parallel MRI with sparsity-promoting regularization," in *Proc. Intl. Soc. Mag. Res. Med.*, 2015, p. 3413.
- [219] G. Nataraj, J.-F. Nielsen, and J. A. Fessler, "A min-max CRLB optimization approach to scan selection for relaxometry," in *Proc. Intl. Soc. Mag. Res. Med.*, 2015, p. 1672.
- [218] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Steady-state imaging with 3D inner volume excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2015, p. 2402.
- [217] S. N. Williams, H. Sun, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, "A spectral-spatial pulse for improved inhomogeneity signal loss in the small-tip fast recovery (STFR) sequence," in *Proc. Intl. Soc. Mag. Res. Med.*, 2015, p. 919.
- [216] M. Le and J. A. Fessler, "Localized temporal subspace modeling for dynamic contrast enhanced liver MRI," in *UM Grad. Symp.*, 2014.
- [215] L. Liu, S. Hsu, J. Balter, Y. Cao, and J. A. Fessler, "A joint classification and bias field estimation algorithm for synthetic CT generation," in *UM Grad. Symp.*, 2014.
- [214] M. G. McGaffin and J. A. Fessler, "Fast model-based X-ray CT reconstruction on the GPU," in *UM Grad. Symp.*, 2014.
- [213] B. E. Moore, R. R. Nadakuditi, and J. A. Fessler, "Improved robust PCA using low-rank denoising with optimal singular value shrinkage," in *UM Grad. Symp.*, 2014.
- [212] M. J. Muckley, D. C. Noll, and J. A. Fessler, "BARISTA: A fast algorithm for MR image reconstruction with sparsity-promoting regularization," in *UM Grad. Symp.*, 2014.
- [211] M. J. Muckley, A. Gilbert, J. A. Fessler, and D. C. Noll, "Imaging fleeting thoughts," in *UM M-Cubed. Symp.*, 2014.
- [210] J. A. Fessler, "Image reconstruction for low-dose X-ray CT," in *Gordon Res. Conf. on Imaging Science*, Invited talk., 2014.

- [209] D. Kim and J. A. Fessler, "Optimized momentum steps for accelerating low-dose X-ray CT image reconstruction," in *Gordon Res. Conf. on Imaging Science*, 2014.
- [208] K. R. Minard, S. M. Colby, D. R. Einstein, R. A. Corley, and J. A. Fessler, "Development and testing of 4D MRI for measuring regional lung mechanics with high spatiotemporal resolution," in *Abs. Intl. Conf. American Thoracic Soc.*, 2014, p. 4318.
- [207] H. Nien and J. A. Fessler, "Accelerating model-based X-ray CT image reconstruction using variable-splitting methods with ordered subsets," in *SIAM Conf. Imaging Sci., Abstract Book*, Invited talk., 2014.
- [206] B. E. Moore, R. R. Nadakuditi, and J. A. Fessler, "Dynamic MRI reconstruction using low-rank plus sparse model with optimal rank regularized eigen-shrinkage," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 740.
- [205] M. Muckley, D. C. Noll, and J. A. Fessler, "Accelerating SENSE-type MR image reconstruction algorithms with incremental gradients," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 4400.
- [204] G. Nataraj, J.-F. Nielsen, and J. A. Fessler, "Regularized, joint estimation of T1 and M0 maps," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 3128.
- [203] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Joint design of continuous excitation k-space trajectory and RF pulse for 3D tailored excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 1438.
- [202] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Steady-state functional MRI using spoiled small-tip fast recovery (STFR) imaging," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 869.
- [201] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Small-tip fast recovery (STFR) imaging using spectrally tailored pulse," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 29.
- [200] D. S. Weller and J. A. Fessler, "Fast non-Cartesian L1-SPIRiT with field inhomogeneity correction," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 84.
- [199] F. Zhao, J. A. Fessler, and D. C. Noll, "Four-dimensional spectral-spatial fat saturation pulse design at 3T," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 949.
- [198] F. Zhao, J. A. Fessler, J.-F. Nielsen, and D. C. Noll, "Simultaneous fat saturation and magnetization transfer preparation with steady-state incoherent sequences," in *Proc. Intl. Soc. Mag. Res. Med.*, 2014, p. 1652.
- [197] J. Zheng, S. Y. Chun, J. A. Fessler, and Y. Dewaraja, "Optimization and application of non-local means (NLM) filtering of SPECT/CT," *J. Nuc. Med. (Abs. Book)*, vol. 55, no. s1, p. 542, May 2014.
- [196] M. J. Muckley, A. C. Gilbert, J. A. Fessler, and D. C. Noll, "Imaging fleeting thoughts," in *M-Cubed Symposium*, 2013.
- [195] J. H. Cho and J. A. Fessler, "Improving isotropy and uniformity of spatial resolution and noise characteristics for low-dose 3D axial X-ray CT," in *UM Grad. Symp.*, 2013.
- [194] D. Kim, S. Ramani, and J. A. Fessler, "Fast ordered subsets optimization algorithms using momentum for statistical X-ray CT image reconstruction," in *UM Grad. Symp.*, 2013.
- [193] M. Le, S. Ramani, and J. A. Fessler, "Regularized image reconstruction for parallel MRI using ADMM," in *UM Grad. Symp.*, 2013.
- [192] M. G. McGaffin and J. A. Fessler, "Sparse positive-definite FIR filter design with Schatten p-norm optimality," in *UM Grad. Symp.*, 2013.
- [191] S. M. Schmitt and J. A. Fessler, "Rapid prediction of image noise variance for 3DCT with arbitrary trajectories," in *UM Grad. Symp.*, 2013.
- [190] M. J. Muckley, S. J. Peltier, J. A. Fessler, and D. C. Noll, "Group sparsity reconstruction for physiological noise correction in functional MRI," in *ISMRM Workshop on Data Sampling and Image Reconstruction*, 2013.

- [189] M. Le, S. Ramani, and J. A. Fessler, "An efficient variable splitting based algorithm for regularized SENSE reconstruction with support constraint," in *Proc. Intl. Soc. Mag. Res. Med.*, 2013, p. 2654.
- [188] M. J. Muckley, S. J. Peltier, D. C. Noll, and J. A. Fessler, "Model-based reconstruction for physiological noise correction in functional MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2013, p. 2623.
- [187] J.-F. Nielsen, H. Sun, J. A. Fessler, and D. C. Noll, "Steady-state functional MRI using small-tip fast recovery (STFR) imaging," in *Proc. Intl. Soc. Mag. Res. Med.*, 2013, p. 3333.
- [186] H. Sun, J. A. Fessler, D. C. Noll, and J.-F. Nielsen, "Strategies for improved small-tip fast recovery (STFR) imaging," in *Proc. Intl. Soc. Mag. Res. Med.*, 2013, p. 2362.
- [185] D. S. Weller, S. Ramani, J.-F. Nielsen, and J. A. Fessler, "Automatic L1-SPIRiT regularization parameter selection using Monte-Carlo SURE estimation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2013, p. 2602.
- [184] F. Zhao, S. D. Swanson, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, "Simultaneous fat saturation and magnetization transfer preparation with 2D small-tip fast recovery imaging," in *Proc. Intl. Soc. Mag. Res. Med.*, 2013, p. 2507.
- [183] F. Zhao, H. Sun, J.-F. Nielsen, J. A. Fessler, and D. C. Noll, "Balanced SSFP-like imaging with simultaneous water-fat separation and band reduction using small-tip fast recovery," in *Proc. Intl. Soc. Mag. Res. Med.*, 2013, p. 2403.
- [182] M. J. Allison, S. Ramani, and J. A. Fessler, "Alternating direction method of multipliers algorithms for MR coil sensitivity estimation," in *UM Graduate Symposium*, 2012.
- [181] J. H. Cho, S. Ramani, and J. A. Fessler, "Accelerating multi-frame image reconstruction with variable-splitting approach," in *UM Graduate Symposium*, 2012.
- [180] A. Chu, M. Le, M. Muckley, F. Zhao, and J. A. Fessler, "Robust super resolution using a variable splitting method," in *UM Graduate Symposium*, 2012.
- [179] J. K. Kim, J. A. Fessler, and Z. Zhang, "Parallel architecture for forward- and back-projection in X-ray Computed Tomography," in *UM Graduate Symposium*, 2012.
- [178] D. Kim and J. A. Fessler, "Spatially adaptive majorization method for X-ray CT image reconstruction," in *UM Graduate Symposium*, 2012.
- [177] M. J. Muckley, J. A. Fessler, and D. C. Noll, "Reducing physiological noise in functional MRI by model-based reconstruction," in *UM Graduate Symposium*, 2012.
- [176] H. Nien and J. A. Fessler, "A parameter-free augmented Lagrangian method for edge-preserving image restoration," in *UM Graduate Symposium*, 2012.
- [175] J. A. Fessler, "Assessment of image quality in the new CT: Statistical reconstruction methods," in *Proc. Amer. Assoc. Phys. Med.*, 2012, p. 3878.
- [174] J. A. Fessler, "Limits of dose reduction in CT: Statistical reconstruction methods," in *Proc. Amer. Assoc. Phys. Med.*, 2012, p. 3868.
- [173] S. Y. Chun, J. A. Fessler, and Y. K. Dewaraja, "Correction for collimator-detector response (CDR) in quantitative SPECT using point spread function (PSF) template approach," *J. Nuc. Med. (Abs. Book)*, vol. 53, no. s1, p. 2365, May 2012.
- [172] Y. Dewaraja, P. Roberson, N. Clinthorne, S. Y. Chun, D. Hubers, D. Regan, R. Ackermann, J. A. Fessler, and M. Ljungberg, "Quantitative Bremsstrahlung SPECT/CT image reconstruction with patient specific Monte Carlo scatter compensation for Y90 microsphere radioembolization (RE)," *J. Nuc. Med. (Abs. Book)*, vol. 53, no. s1, p. 444, May 2012.



- [171] M. J. Allison and J. A. Fessler, "Accelerated computation of regularized field map estimates," in *Proc. Intl. Soc. Mag. Res. Med.*, 2012, p. 0413.
- [170] S. Ramani, J.-F. Nielsen, and J. A. Fessler, "Automatic regularization parameter selection for iterative nonlinear MRI reconstruction," in *Proc. Intl. Soc. Mag. Res. Med.*, 2012, p. 2538.
- [169] H. Sun, J. A. Fessler, and J. F. Nielsen, "Analytic description of steady-state imaging with dual RF pulses and gradient spoiling," in *Proc. Intl. Soc. Mag. Res. Med.*, 2012, p. 4183.
- [168] F. Zhao, J. A. Fessler, J.-F. Nielsen, D. Yoon, and D. C. Noll, "Regularized estimation of magnitude and phase of multiple-coil B1 field via Bloch-Siegert B1 mapping," in *Proc. Intl. Soc. Mag. Res. Med.*, 2012, p. 2512.
- [167] K. A. Khalsa and J. A. Fessler, "Temporal regularization use in image reconstruction of dynamic contrast-enhanced magnetic resonance images," in *Era of Hope Conference*, 2011.
- [166] J. H. Cho and J. A. Fessler, "Accelerating X-ray CT image reconstruction using ordered-subsets with double surrogates," in *UM Graduate Symposium*, 2011.
- [165] D. H. Kim and J. A. Fessler, "New optimization transfer methods for accelerated X-ray CT image reconstruction," in *UM Graduate Symposium*, 2011.
- [164] D. J. Lingenfelter, J. A. Fessler, C. D. Scott, and Z. He, "Source detection performance prediction for a CdZnTe array," in *UM Graduate Symposium*, 2011.
- [163] A. Matakos, S. Ramani, and J. A. Fessler, "Image restoration using non-circulant shift-invariant system models," in *UM Graduate Symposium*, 2011.
- [162] S. Schmitt and J. A. Fessler, "Fast variance prediction for 3D axial CT with quadratic regularization," in *UM Graduate Symposium*, 2011.
- [161] J. M. Balter, Y. Long, M. M. Folkerts, G. C. Sharp, T. R. Bortfeld, and J. A. Fessler, "An open platform for 2D-3D image registration experiments," in *Proc. Amer. Assoc. Phys. Med.*, 2011, p. 3450.
- [160] J. A. Fessler, "Iterative image reconstruction for CT," in *Proc. Amer. Assoc. Phys. Med.*, Invited educational course TU-A-211-01., 2011, p. 3744.
- [159] Y. Long, J. A. Fessler, and J. M. Balter, "Two-material decomposition from a single CT scan using statistical image reconstruction," in *Proc. Amer. Assoc. Phys. Med.*, 2011, p. 3810.
- [158] M. J. Allison and J. A. Fessler, "An augmented Lagrangian method for MR coil sensitivity estimation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2011, p. 2881.
- [157] S. Ramani and J. A. Fessler, "An augmented Lagrangian method for regularized MRI reconstruction using SENSE," in *Proc. Intl. Soc. Mag. Res. Med.*, 2011, p. 2873.
- [156] F. Zhao, J. A. Fessler, J.-F. Nielsen, and D. C. Noll, "Separate magnitude and phase regularization via compressed sensing," in *Proc. Intl. Soc. Mag. Res. Med.*, 2011, p. 2841.
- [155] D. Yoon, J. A. Fessler, A. C. Gilbert, and D. G. Noll, "A fast parallel excitation pulse design for efficient selection and ordering of PE locations with B0 field inhomogeneity," in *Proc. Intl. Soc. Mag. Res. Med.*, 2011, p. 2902.
- [154] J. B. Moody, Y. K. Dewaraja, J. A. Fessler, and E. P. Ficaro, "Influence of septal penetration and scatter on 123I SPECT detector response modeling," *J. Nuc. Med. (Abs. Book)*, vol. 52, no. s1, p. 2012, May 2011.
- [153] D. J. Lingenfelter, C. G. Wahl, J. A. Fessler, C. D. Scott, and Z. He, "Point-source detection with 3D-position-sensitive detectors," in *NSF/DNDO ARI Conf.*, 2011.
- [152] J. K. Kim, J. A. Fessler, and Z. Zhang, "FPGA implementation of forward-projection for X-ray CT using separable footprints," in *UM Graduate Symposium*, 2010.

- [151] D. J. Lingenfelter, J. A. Fessler, C. D. Scott, and Z. He, "Predicting detection performance under model mismatch with application to gamma-ray imaging," in *UM Graduate Symposium*, 2010.
- [150] A. Matakos and J. A. Fessler, "Dynamic MR image and field map joint reconstruction accounting for through-plane field map gradients," in *UM Graduate Symposium*, 2010.
- [149] Y. Long, J. A. Fessler, and J. M. Balter, "Accuracy limits for projection-to-volume targeting during arc therapy," in *Proc. Amer. Assoc. Phys. Med.*, 2010, p. 3154.
- [148] Y. Kim, J. A. Fessler, and D. Noll, "Selection of image support region and of an improved regularization for non-Cartesian SENSE," in *Proc. Intl. Soc. Mag. Res. Med.*, 2010, p. 2881.
- [147] D. Yoon, J. A. Fessler, J.-F. Nielsen, A. Gilbert, and D. Noll, "Non-convex greedy compressed sensing for phase contrast MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2010, p. 4852.
- [146] D. J. Lingenfelter, J. A. Fessler, C. Scott, and Z. He, "Asymptotic performance of the GLRT and source intensity test for detecting a gamma-ray point-source in background," in *NSF/DNDO ARI Conf.*, 2010.
- [145] L. Cheng, X. He, J. A. Fessler, and E. C. Frey, "A 4-D maximum a posteriori (MAP) reconstruction method for improved dose volume histogram estimation," *J. Nuc. Med. (Abs. Book)*, vol. 51, no. s2, p. 244, 2010.
- [144] M. A. Musheinessh, C. J. Divin, J. A. Fessler, and T. B. Norris, "Model-based THz imaging for 2D reflection-mode geometry," in *Conf. on Lasers and Electro-Optics*, vol. JWA, 2010, p. 115.
- [143] D. Yoon, J. A. Fessler, A. C. Gilbert, and D. C. Noll, "Simultaneous signal loss correction from B1 and B0 field inhomogeneity in BOLD fMRI with parallel excitation," in *ISMRM Workshop on Parallel MRI*, 2009, p. 38.
- [142] W. Huh and J. A. Fessler, "Model-based image reconstruction for dual-energy X-ray CT," in *UM Graduate Symposium*, 2009.
- [141] D. J. Lingenfelter, J. A. Fessler, C. D. Scott, and Z. He, "Benefits of imaging detectors for radiation source detection," in *UM Graduate Symposium*, 2009.
- [140] D. Yoon, J. A. Fessler, A. C. Gilbert, and D. C. Noll, "Simultaneous signal loss correction from B1 and B0 field inhomogeneity in BOLD fMRI," in *UM Graduate Symposium*, 2009.
- [139] D. Ruan, J. A. Fessler, J. M. Balter, and P. J. Keall, "Real-time profiling of respiratory motion and its application to continuous horizon prediction," in *Proc. Amer. Assoc. Phys. Med.*, 2009, p. 2724.
- [138] D. J. Lingenfelter, J. A. Fessler, C. Scott, C. Wahl, and Z. He, "Performance analysis of position-sensitive imaging systems," in *NSF/DNDO ARI Conf.*, 2009.
- [137] D. Yoon, R. Maleh, A. C. Gilbert, J. A. Fessler, and D. C. Noll, "Sparsity in MRI parallel excitation," in *Houston Society for Engineering in Medicine and Biology Conf.*, Invited presentation for "Sparsity-driven medical imaging" symposium., 2009, p. 55.
- [136] J. R. Valenzuela and J. A. Fessler, "Joint estimation of Stokes images and aberrations from phase-diverse polarimetric measurements," in *Proc. Comp. Optical Sensing and Imaging*, 2009, CWA2.
- [135] M. A. Musheinessh, C. J. Divin, J. A. Fessler, and T. B. Norris, "Time-reversal and model-based imaging in a THz waveguide," in *Conf. on Lasers and Electro-Optics*, vol. CWM, 2009, p. 4.
- [134] D. Yoon, R. Maleh, A. C. Gilbert, J. A. Fessler, and D. C. Noll, "Fast selection of phase encoding locations in parallel excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2009, p. 2595.
- [133] C.-Y. Yip, D. Yoon, V. Olafsson, S. Lee, W. A. Grissom, J. A. Fessler, and D. C. Noll, "Spectral-spatial pulse design for through-plane phase precompensatory slice selection in T2\*-weighted functional MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2009, p. 177.

- [132] D. Yeo, J. A. Fessler, and B. Kim, "Motion induced magnetic susceptibility and field map estimation in fMRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2009, p. 4640.
- [131] V. Olafsson, J. A. Fessler, and D. C. Noll, "Fast and motion robust R2\* reconstruction for functional MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2009, p. 2831.
- [130] W. Huh and J. A. Fessler, "Water-fat decomposition with MR data based regularized estimation in MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2009, p. 2846.
- [129] A. K. Funai, J. A. Fessler, and D. C. Noll, "Estimating K transmit B1+ maps from K+1 scans for parallel transmit MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2009, p. 2609.
- [128] J. A. Fessler, "Model-based image reconstruction in MRI," in *Huangguoshu Intl. Conf. on Biomedical Mathematics*, Invited presentation., 2008, p. 20.
- [127] J. Balter and J. A. Fessler, "The dynamic model in radiation oncology: Sparse sampling, surrogates, and complexity in maintaining sufficient precision," in *Huangguoshu Intl. Conf. on Biomedical Mathematics*, Invited presentation., 2008, p. 15.
- [126] D. J. Lingenfelter, J. A. Fessler, Z. He, and C. G. Wahl, "Image reconstruction using incomplete data with a spatial sparsity constraint," in *UM Graduate Symposium*, 2008.
- [125] J. A. Fessler, "Mathematical challenges in magnetic resonance imaging (MRI)," in *SIAM Conf. Imaging Sci., Abstract Book*, Invited plenary talk., 2008.
- [124] W. Wang, Z. He, and J. A. Fessler, "Energy-imaging integrated deconvolution with 3D semiconductor gamma-ray detectors," in *NSF/DNDO ARI Conf.*, 2008.
- [123] X. He, J. A. Fessler, and E. C. Frey, "Regularized reconstruction algorithms for dual-isotope myocardial perfusion SPECT (MPS) imaging using a cross-tracer edge-preserving prior," *J. Nuc. Med. (Abs. Book)*, vol. 49, no. s1, p. 152, 2008.
- [122] A. K. Funai, J. A. Fessler, W. Grissom, and D. C. Noll, "Regularized B1+ map estimation with slice selection effects," in *Proc. Intl. Soc. Mag. Res. Med.*, 2008, p. 3145.
- [121] W. A. Grissom, J. A. Fessler, and D. C. Noll, "Transmit-PILS RF pulse design for small-tip-angle parallel excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2008, p. 1310.
- [120] W. A. Grissom, D. Xu, J. A. Fessler, and D. C. Noll, "Fast optimal control method for large-tip-angle RF pulse design in parallel excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2008, p. 1301.
- [119] W. Huh, J. A. Fessler, and A. A. Samsonov, "Water-fat decomposition with regularized field map," in *Proc. Intl. Soc. Mag. Res. Med.*, 2008, p. 1382.
- [118] Y. Kim, J. A. Fessler, and D. C. Noll, "Smoothing effect of sensitivity map on fMRI data using a novel regularized self-calibrated estimation method," in *Proc. Intl. Soc. Mag. Res. Med.*, 2008, p. 1267.
- [117] C.-Y. Yip, S. Lee, W. Grissom, J. A. Fessler, and D. C. Noll, "Spectral-spatial pulse design for signal recovery in T2\*-weighted BOLD functional MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2008, p. 2453.
- [116] D. Yoon, W. A. Grissom, J. A. Fessler, and D. C. Noll, "Toeplitz-based acceleration of RF pulse design for parallel excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2008, p. 1312.
- [115] T. Way, H.-P. Chan, and J. A. Fessler, "Classification of CT lung nodules by a computer aided diagnosis (CAD) system with texture and gradient field features," in *2007 Engineering Graduate Symposium*, 2007.
- [114] J. Li, J. A. Fessler, and K. F. Koral, "Fine-structure modeling of the psrf of a parallel-hole collimator yields improved recovery of activity within focal volumes," *J. Nuc. Med. (Abs. Book)*, vol. 48, no. s2, p. 99, 2007.
- [113] A. Joshi, J. A. Fessler, and R. Koeppe, "Signal separation in dual-tracer brain PET imaging using reference region models," *J. Nuc. Med. (Abs. Book)*, vol. 48, no. s2, p. 156, 2007.

- [112] S. Kohlmyer, A. Alessio, P. Kinahan, and J. A. Fessler, "4D PET temporal smoothing with respiratory induced Fourier filter (RIFF)," *J. Nuc. Med. (Abs. Book)*, vol. 48, no. s2, p. 197, 2007.
- [111] W. A. Grissom, C.-Y. Yip, S. M. Wright, J. A. Fessler, and D. C. Noll, "Additive-angle method for fast large-tip-angle RF pulse design in parallel excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2007, p. 1689.
- [110] W. A. Grissom, K. N. Kurpad, H. Nam, J. A. Fessler, S. M. Wright, and D. C. Noll, "Parallel excitation on a 3T human MRI scanner using current source amplifiers and iterative RF pulse design," in *Proc. Intl. Soc. Mag. Res. Med.*, 2007, p. 3260.
- [109] W. A. Grissom, J. A. Fessler, and D. C. Noll, "Time-segmented spin domain method for fast large-tip-angle RF pulse design in parallel excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2007, p. 676.
- [108] K. A. Khalsa and J. A. Fessler, "Accelerated iterative reconstruction of temporally regularized dynamic MRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2007, p. 1922.
- [107] S. Lee, J. A. Fessler, and D. C. Noll, "Iterative reconstruction for SMART imaging," in *Proc. Intl. Soc. Mag. Res. Med.*, 2007, p. 1905.
- [106] V. Olafsson, M. Ulfarsson, J. A. Fessler, and D. C. Noll, "Reducing effects of drift in fMRI data using joint reconstruction of R2\* and field maps," in *Proc. Intl. Soc. Mag. Res. Med.*, 2007, p. 1978.
- [105] C.-Y. Yip, W. Grissom, J. A. Fessler, and D. C. Noll, "Joint design of trajectory and RF pulses for parallel excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2007, p. 1685.
- [104] J. A. Fessler and D. C. Noll, "Iterative image reconstruction methods for non-cartesian MRI," in *ISMRM Workshop on Non-Cartesian MRI*, Invited presentation., 2007.
- [103] C. Yip, S. Lee, J. A. Fessler, and D. C. Noll, "Iterative spectral-spatial pulse design: Toward full use of design freedom," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 2998.
- [102] C. Yip, J. A. Fessler, and D. C. Noll, "Advanced three-dimensional tailored RF pulse for signal loss recovery in T2\*-weighted fMRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 3001.
- [101] D. Yeo, T. L. Chenevert, J. A. Fessler, and B. Kim, "A robust field-map estimation method using dual-echo GRE with bipolar readout gradient structure," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 2397.
- [100] D. Yeo, J. A. Fessler, and B. Kim, "Concurrent geometric distortion correction in mapping slice-to-volume (MSV) motion correction of fMRI time series," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 2342.
- [99] V. Olafsson, S. Lee, J. A. Fessler, and D. C. Noll, "Fast Toeplitz based iterative SENSE reconstruction," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 2459.
- [98] V. Olafsson, J. A. Fessler, and D. C. Noll, "Dynamic updates of R2\* and field map in fMRI using a spiral-in quick-spiral-out k-space trajectory," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 2838.
- [97] S. Lee, J. A. Fessler, and D. C. Noll, "A dynamic R2\*-and-field-map-corrected imaging for single shot rosette trajectories," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 2515.
- [96] W. A. Grissom, C.-Y. Yip, Z. Zhang, V. Stenger, J. A. Fessler, and D. C. Noll, "A spatial domain method for the design of RF pulses in multi-coil parallel excitation," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 3015.
- [95] B. M. Donald, R. C. Welsh, J. A. Fessler, and D. C. Noll, "Multi-shot DWI with iterative phase and field inhomogeneity corrections," in *Proc. Intl. Soc. Mag. Res. Med.*, 2006, p. 1045.
- [94] Y. K. Dewaraja, M. Ljungberg, and J. A. Fessler, "Anatomical information based partial volume compensation for I-131 SPECT imaging in radioimmunotherapy," *J. Nuc. Med. (Abs. Book)*, vol. 47, no. s1, p. 115, 2006.

- [93] K. F. Koral, J. N. Kritzman, V. E. Rogers, R. J. Ackermann, and J. A. Fessler, "Optimizing the number of equivalent iterations of 3D OSEM in SPECT reconstruction of I-131 focal activities," *J. Nuc. Med. (Abs. Book)*, vol. 47, no. s1, p. 366, 2006.
- [92] A. Joshi, J. A. Fessler, and R. A. Koeppe, "Reducing inter-scanner PET image variability," *J. Nuc. Med. (Abs. Book)*, vol. 47, no. s1, p. 58, 2006.
- [91] R. A. Koeppe, A. Joshi, and J. A. Fessler, "Interventional studies for validation of non-invasive dual-tracer PET," in *Neuroreceptor Mapping*, In NeuroImage, 31:S2-T60, 2006, 2006, T60.
- [90] D. Ruan, J. Balter, M. Roberson, J. A. Fessler, and M. Kessler, "Non-rigid registration using regularization that accommodates local tissue rigidity," in *Great Lakes AAPM*, 2005.
- [89] K. A. Khalsa and J. A. Fessler, "Iterative reconstruction for dynamic MRI," in *NASA-NBEI Symposium*, 2005.
- [88] B. De Man, S. Basu, J.-B. Thibault, and J. A. Fessler, "Iterative reconstruction in X-ray CT: a study of different minimization approaches," in *Proc. Radiological Soc. N. Amer.*, 2005.
- [87] J. E. Huggins, S. P. Levine, V. Solo, J. A. Fessler, D. M. Minecan, S. Y. Chun, R. C. Welsh, R. K. Kushwaha, and S. L. BeMent, "2005 progress on a direct brain interface based on detection of ERPs in ECoG," in *NIH Neural Interfaces Workshop*, 2005, p. 45.
- [86] J. E. Huggins, S. P. Levine, V. Solo, J. A. Fessler, D. M. Minecan, S. Y. Chun, R. K. Kushwaha, S. L. BeMent, O. Sagher, L. A. Schuh, B. J. Smith, K. V. Elisevich, G. Pfurtscheller, and B. Graimann, "University of Michigan direct brain interface: 2005 update," in *Brain-Computer Interface Tech. (Abstracts)*, 2005, 27–8.
- [85] S. Y. Chun, J. E. Huggins, J. A. Fessler, V. Solo, and S. P. Levine, "Detection of events in electrocorticogram using a quadratic detector based on a two covariance model," in *Brain-Computer Interface Tech. (Abstracts)*, 2005, p. 82.
- [84] R. Zeng, J. A. Fessler, and J. M. Balter, "3D respiratory motion estimation from slowly rotating 2D X-ray projection views," in *Proc. Amer. Assoc. Phys. Med.*, Abstract in Med. Phys 32(6) 2005., 2005, p. 2095.
- [83] D. Ruan, J. A. Fessler, J. M. Balter, J. Wolthaus, and J.-J. Sonke, "Analysis of periodicity and complexity of breathing patterns for radiotherapy," in *Proc. Amer. Assoc. Phys. Med.*, Abstract in Med. Phys 32(6) 2005., 2005, p. 1920.
- [82] P. E. Kinahan, A. M. Alessio, J. A. Fessler, T. K. Lewellen, and H. J. Vesselle, "A simple dual energy method for CT-based attenuation correction that accounts for contrast agents in in PET/CT imaging," *J. Nuc. Med. (Abs. Book)*, vol. 46, no. 5, 113p, May 2005.
- [81] A. Joshi, J. A. Fessler, and R. A. Koeppe, "Linear models for reduction of bias in DVR estimates obtained from reference region-based graphical analysis," *J. Nuc. Med. (Abs. Book)*, vol. 46, no. 5, 435p, May 2005.
- [80] V. Olafsson, G. R. Lee, J. A. Fessler, and D. C. Noll, "Interleaved spiral-in/spiral-out 3D-FSE reconstruction using a fast field corrected iterative algorithm," in *Proc. Intl. Soc. Mag. Res. Med.*, 2005, p. 2298.
- [79] C. Yip, J. A. Fessler, and D. C. Noll, "A novel, fast and adaptive trajectory in three-dimensional excitation k-space," in *Proc. Intl. Soc. Mag. Res. Med.*, 2005, p. 2350.
- [78] J. A. Fessler, S. Y. Chun, J. E. Huggins, and S. P. Levine, "Model-based detection of event-related signals in electrocorticograms," in *Neural Info. Proc. Sys.*, 2004.
- [77] M. Kessler, M. Roberson, R. Zeng, and J. A. Fessler, "Deformable image registration using multiresolution B-splines," in *Proc. Amer. Assoc. Phys. Med.*, Abstract in Med. Phys 31(6):1792, 2004., 2004, p. 1792.

- [76] P. Kinahan, A. Alessio, J. A. Fessler, P. M. Cheng, H. J. Vesselle, and T. K. Lewellen, "Dual-energy CT for quantitative attenuation correction in PET/CT imaging," in *Proc. Radiological Soc. N. Amer.*, 2004, SSE18–04.
- [75] T. W. Way, L. M. Hadjiiski, B. Sahiner, H. Chan, P. N. Cascade, N. R. Bogot, E. A. Kazerooni, J. A. Fessler, and Z. Ge, "Classification of pulmonary nodules using automated 3d segmentation and feature classification for computer-aided diagnosis on CT scans," in *Proc. Radiological Soc. N. Amer.*, 2004, SSA16–04.
- [74] B. Feng, P. H. Pretorius, P. P. Bruyant, G. Boening, R. D. Beach, H. C. Gifford, J. A. Fessler, and M. A. King, "Incorporating outline of emission image in penalized likelihood reconstruction with transmission data acquired with less than complete gantry rotation," in *Proc. Amer. Soc. Nuc. Card.*, 2004.
- [73] S. Lee, D. Noll, and J. A. Fessler, "EXTended Rosette ACquisition Technique (EXTRACT): a dynamic R2\* mapping method using extended rosette trajectory," in *Proc. Intl. Soc. Mag. Res. Med.*, 2004, p. 2128.
- [72] V. Olafsson, J. A. Fessler, and D. C. Noll, "Dynamic update of R2\* and field map in fMRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2004, p. 45.
- [71] V. A. Stenger, B. P. Sutton, F. E. Boada, J. A. Fessler, and D. C. Noll, "Reversed spiral SENSE for fMRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2004, p. 1024.
- [70] B. P. Sutton, D. C. Noll, and J. A. Fessler, "Compensating for within-voxel susceptibility gradients in BOLD fMRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2004, p. 349.
- [69] C.-Y. Yip, J. A. Fessler, and D. C. Noll, "A constrained minimization approach to designing multi-dimensional, spatially selective RF pulses," in *Proc. Intl. Soc. Mag. Res. Med.*, 2004, p. 188.
- [68] J. Kim and J. A. Fessler, "Nonrigid image registration using constrained optimization," in *SIAM Conf. Imaging Sci., Abstract Book*, 2004.
- [67] B. Feng, H. Pretorius, P. P. Bruyant, G. Boening, R. D. Beach, J. A. Fessler, and M. A. King, "Impact on cardiac reconstruction of using attenuation maps reconstructed with less than complete rotation acquired by asymmetric cone-beam transmission imaging," *J. Nuc. Med. (Abs. Book)*, vol. 45, no. 5, p. 158, May 2004.
- [66] B. Feng, J. A. Fessler, G. Boening, and M. A. King, "Penalized likelihood reconstruction for dual-planar cone-beam transmission imaging," *J. Nuc. Med. (Abs. Book)*, vol. 45, no. 5, p. 104, May 2004.
- [65] T. Way, B. Sahiner, L. Hadjiiski, H.-P. Chan, N. Bogot, P. Cascade, E. Kazerooni, and J. A. Fessler, "Segmentation of pulmonary nodules with 3D active contour model for computer-aided diagnosis," in *Proc. Radiological Soc. N. Amer.*, 2003, Q16–1342.
- [64] B. P. Sutton, D. C. Noll, and J. A. Fessler, "Dynamic field map estimation using a single spiral in / spiral out acquisition," in *Proc. Intl. Soc. Mag. Res. Med.*, 2003, p. 479.
- [63] V. T. Olafsson, D. C. Noll, and J. A. Fessler, "New approach for estimating  $\Delta R_2^*$  in fMRI," in *Proc. Intl. Soc. Mag. Res. Med.*, 2003, p. 132.
- [62] J. E. Huggins, S. P. Levine, J. A. Fessler, W. M. Sowers, G. Pfurtscheller, B. Graimann, A. Schloegl, D. N. Minecan, R. K. Kushwaha, S. L. BeMent, O. Sagher, and L. A. Schuh, "Electrocorticogram as the basis for a direct brain interface: Opportunities for improved detection accuracy," in *IEEE EMBS Conference on Neural Engineering: Merging Engineering with Neuroscience*, 2003, 587–91.
- [61] A. Yendiki and J. A. Fessler, "Computer observer detection performance from statistically reconstructed tomographic images," in *LANL Workshop on Image Analysis*, 2002.
- [60] J. Kim and J. A. Fessler, "Design and analysis of a robust image registration method," in *LANL Workshop on Image Analysis*, 2002.
- [59] J. A. Fessler and B. P. Sutton, "The nonuniform FFT and its applications in tomographic image reconstruction," in *LANL Workshop on Image Analysis*, 2002.

- [58] S. P. Levine, J. E. Huggins, J. A. Fessler, W. M. Sowers, R. K. Kushwaha, S. L. BeMent, D. N. Minecan, O. Sagher, K. J. Leneway, J. J. Choi, S. J. Grikschat, L. A. Schuh, B. J. Smith, and K. V. Elisevich, "University of Michigan direct brain interface: 2002 update," in *Brain-Computer Interfaces for Communication and Control*, 2002, p. 54.
- [57] W. M. Sowers, J. A. Fessler, S. P. Levine, and J. E. Huggins, "Detection of event-related signals in electrocorticogram," in *Brain-Computer Interfaces for Communication and Control*, 2002, p. 105.
- [56] A. O. Hero, J. A. Fessler, and C. Y. Yip, "Single spin detection for MRFM," in *DARPA MOSAIC Kickoff Workshop*, 2002.
- [55] B. P. Sutton, S. J. Peltier, J. A. Fessler, and D. C. Noll, "Simultaneous estimation of  $I_0$ ,  $R_2^*$ , and field map using a multi-echo spiral acquisition," in *Proc. Intl. Soc. Mag. Res. Med.*, 2002, p. 1323.
- [54] B. P. Sutton, J. A. Fessler, and D. C. Noll, "Field-corrected imaging using joint estimation of image and field map," in *Proc. Intl. Soc. Mag. Res. Med.*, 2002, p. 737.
- [53] S. Lee, J. A. Fessler, and D. Noll, "A simultaneous estimation of field inhomogeneity and  $R_2^*$  maps using extended rosette trajectory," in *Proc. Intl. Soc. Mag. Res. Med.*, 2002, p. 2327.
- [52] S. Lee, S. J. Peltier, J. A. Fessler, and D. Noll, "Estimation of  $R_2^*$  using extended rosette acquisition," in *Hum. Brain Map.*, In *NeuroImage* 16(2 S1):151-2, 2002., 2002, 151–2.
- [51] S. J. Peltier, B. P. Sutton, J. A. Fessler, and D. C. Noll, "Simultaneous estimation of  $I_0$ ,  $R_2^*$ , and field map using a multi-echo spiral acquisition," in *Hum. Brain Map.*, In *NeuroImage* 16(2 S1):95-6, 2002., 2002, 95–6.
- [50] K. F. Koral, Q. Lin, A. Yendiki, A. Akhtar, Y. K. Dewaraja, and J. A. Fessler, "Application of unregularized OSEM with 3D detector response to I-131 SPECT with ultra-high- and high-energy collimation," *J. Nuc. Med. (Abs. Book)*, vol. 43, no. 5, p. 215, May 2002.
- [49] J. A. Fessler and B. P. Sutton, "Tomographic image reconstruction using the nonuniform FFT," in *SIAM Conf. Imaging Sci., Abstract Book*, 2002, p. 21.
- [48] S. P. Levine, J. E. Huggins, J. A. Fessler, E. A. Passaro, S. L. BeMent, R. K. Kushwaha, O. Sagher, S. M. Laux, W. M. Sowers, J. B. Carneal, L. A. Schuh, B. J. Smith, K. V. Elisevich, G. Pfurtscheller, and B. Graimann, "Improving detection accuracy for a direct brain interface based on detection of event related potentials in electrocorticogram," in *Neural Info. Proc. Sys.*, 2001.
- [47] S. P. Levine, J. E. Huggins, J. A. Fessler, E. A. Passaro, S. L. BeMent, R. K. Kushwaha, O. Sagher, S. M. Laux, W. M. Sowers, J. B. Carneal, L. A. Schuh, B. J. Smith, K. V. Elisevich, G. Pfurtscheller, and B. Graimann, "2001 progress on a direct brain interface based on detection of ERPs in ECoG," in *NIH Neural Prosthesis Workshop*, 2001.
- [46] B. P. Sutton, D. Noll, and J. A. Fessler, "Simultaneous estimation of image and inhomogeneity field map," in *ISMRM Minimum Data Acquisition Workshop*, 2001, 15–8.
- [45] S. Sothvirat, J. A. Fessler, E. N. Leith, and K. D. Mills, "Statistical image restoration for confocal image plane holography," in *Proc. Optical Society Amer.*, 2001.
- [44] J. Kim, J. A. Fessler, K. L. Lam, J. M. Balter, and R. K. Ten Haken, "An automatic 3D set-up error estimator for radiotherapy using mutual information," in *Proc. Amer. Assoc. Phys. Med.*, 2001.
- [43] Y. Dewaraja, M. Ljungberg, J. A. Fessler, and K. F. Koral, "Effect of object shape in 131-I SPECT tumor quantification," *J. Nuc. Med. (Abs. Book)*, vol. 42, no. 5, p. 104, May 2001.
- [42] G. Ferrise, J. Huggins, J. A. Fessler, and S. Levine, "Triggerless movement specific template development for use in detecting event related potentials," *Med. Phys.*, vol. 27, no. 6, p. 1402, Jun. 2000, World Congress on Medical Physics and Biomedical Engineering.

- [41] E. P. Ficaro and J. A. Fessler, "The importance of the transmission reconstruction algorithm in attenuation corrected tomography: A phantom study," *J. Nuc. Med. (Abs. Book)*, vol. 41, no. 5, p. 192, May 2000.
- [40] S. Krishnan, J. A. Fessler, and T. L. Chenevert, "Spatio-temporal bandwidth-based segmented acquisition for dynamic 3D contrast-enhanced breast imaging," in *Proc. Intl. Soc. Mag. Res. Med.*, 2000, p. 2177.
- [39] D. F. Yu and J. A. Fessler, "Statistical methods for PET transmission scans with nonlocal edge-preserving regularization," in *Biomedical Imaging: Beyond Diagnostics*, 1999, A5.
- [38] D. F. Yu and J. A. Fessler, "Penalized likelihood image reconstruction for overlapping transmission beams," in *Biomedical Imaging: Beyond Diagnostics*, 1999, A6.
- [37] B. P. Sutton and J. A. Fessler, "Iterative reconstruction for field inhomogeneities in MR imaging," in *Biomedical Imaging: Beyond Diagnostics*, 1999, p. 25.
- [36] J. W. Stayman and J. A. Fessler, "Regularization for uniform spatial resolution properties in penalized-likelihood PET reconstruction," in *Biomedical Imaging: Beyond Diagnostics*, 1999, A4.
- [35] S. Sothvirat and J. A. Fessler, "Image restoration for confocal microscopy by using block coordinate descent algorithm," in *Biomedical Imaging: Beyond Diagnostics*, 1999, p. 23.
- [34] J. A. Fessler, "Spatial resolution properties of penalized-likelihood image reconstruction methods," in *Whitaker Foundation Biomedical Engineering Research Conf.*, 1999, p. 21.
- [33] E. P. Ficaro, J. A. Fessler, J. N. Kritzman, P. C. Hawman, S. W. DeBruin, and J. R. Corbett, "Multiple line source array TCT/ECT system: A technical phantom evaluation," *J. Nuc. Med. (Abs. Book)*, vol. 40, no. 5, p. 4, May 1999.
- [32] J. A. Fessler, "Fast converging iterative algorithms for PET," in *The VIII symposium on the medical applications of cyclotrons, Abstract book*, 1999, p. 13.
- [31] J. A. Fessler and A. O. Hero, "Comparing estimator covariances at matched spatial resolutions for imaging system design," in *Proc. 1999 IEEE Info. Theory Wkshp. on Detection, Estimation, Classification and Imaging (DECI)*, 1999, p. 15.
- [30] J. A. Fessler, "Spatial resolution properties of penalized-likelihood image reconstruction methods," in *Whitaker Foundation Biomedical Engineering Research Conf.*, 1998, p. 129.
- [29] E. P. Ficaro, C. S. Duvernoy, J. A. Fessler, and J. R. Corbett, "End-diastolic vs ungated attenuation corrected myocardial perfusion SPECT for the detection of coronary heart disease," *J. Nuc. Med. (Abs. Book)*, vol. 39, no. 5, p. 74, May 1998.
- [28] E. P. Ficaro, J. A. Fessler, K. Ghia, Y. C. Chen, and J. R. Corbett, "Differences in attenuation corrected myocardial activity distributions in low likelihood patients due to the emission reconstruction algorithm," *J. Nuc. Med. (Abs. Book)*, vol. 39, no. 5, p. 74, May 1998.
- [27] J. R. Corbett, C. S. Duvernoy, J. A. Fessler, and E. P. Ficaro, "Attenuation corrected SPECT perfusion imaging: Should corrected and uncorrected images be viewed together?" *J. Nuc. Med. (Abs. Book)*, vol. 39, no. 5, p. 73, May 1998.
- [26] C. Y. Ng, N. H. Clinthorne, J. A. Fessler, A. O. Hero, and W. L. Rogers, "Structured bias originating from interaction between a penalized objective function and the system matrix," *J. Nuc. Med. (Abs. Book)*, vol. 38, no. 5, p. 9, May 1997.
- [25] E. P. Ficaro and J. A. Fessler, "Statistical algorithms for reconstructing cardiac attenuation maps from simultaneous transmission-emission SPECT systems," *J. Nuc. Med. (Abs. Book)*, vol. 38, no. 5, p. 214, May 1997.



- [24] K. R. Koral, S. Lin, J. A. Fessler, M. S. Kaminski, R. L. Wahl, C. R. Meyer, J. L. Boes, B. Kim, and P. H. Bland, "Potentially marker-free registration of CT with I-131 Anti-B1 monoclonal-antibody intra-therapy SPECT," in *The Sixth Conf. on Radioimmunodetection and Radioimmunotherapy of Cancer*, Published in Tumor Targeting, 2(3):174, 1996., 1996.
- [23] M. C. Wrobel, N. H. Clinthorne, J. A. Fessler, Y. Zhang, and W. L. Rogers, "High energy slit aperture and pinhole SPECT, a proposed method for correcting for aperture penetration to enhance resolution and minimize penetration background," *J. Nuc. Med. (Abs. Book)*, vol. 37, no. 5, p. 7, May 1996.
- [22] E. P. Ficaro, J. A. Fessler, P. D. Shreve, J. N. K. P. A. Rose, and J. R. Corbett, "Diagnostic-accuracy of attenuation corrected cardiac SPECT perfusion imaging," *Circulation*, vol. 92, no. 8, p. 111, Oct. 1995.
- [21] A. O. Hero and J. A. Fessler, "Sufficient conditions for norm convergence of the EM algorithm," in *Intl. Symp. on Information Theory*, 1995, p. 176.
- [20] Y. Zhang, J. A. Fessler, N. H. Clinthorne, and W. L. Rogers, "A hybrid-grid parameterization method for SPECT reconstruction," *J. Nuc. Med. (Abs. Book)*, vol. 36, no. 5, p. 172, May 1995.
- [19] D. E. Kuhl, J. A. Fessler, S. Minoshima, K. A. Frey, N. L. Foster, E. P. Ficaro, D. M. Wieland, and R. A. Koeppe, "In vivo mapping of the vesicular acetylcholine transporter in aging and Alzheimer's disease," *J. Cerebral Blood Flow and Metabolism*, vol. 15, no. 1, p. 132, 1995.
- [18] W. L. Rogers, N. H. Clinthorne, J. A. Fessler, Y. Zhang, L. Hua, C. Ng, M. Usman, and A. O. Hero, "Value of a vertex view for brain SPECT," *Eur. J. Nuc. Med. (Abs. of the World Cong. of the World Fed. of Nucl. Med. & Biol.)*, vol. 21, no. 10, p. 75, Oct. 1994.
- [17] J. Q. Luo, K. F. Koral, M. Ljungberg, J. A. Fessler, R. A. Koeppe, and D. E. Kuhl, "Monte-Carlo study of circumferential variations in cortex activity in I-123 SPECT," *J. Nuc. Med. (Abs. Book)*, vol. 35, no. 5, p. 82, May 1994.
- [16] D. E. Kuhl, J. A. Fessler, S. Minoshima, K. Cho, K. A. Frey, D. M. Wieland, and R. A. Koeppe, "In vivo mapping of cholinergic neurons in the human brain using SPECT and (-)-5-[I-123] Iodobenzovesamical (IBVM)," *J. Nuc. Med. (Abs. Book)*, vol. 35, no. 5, p. 68, May 1994.
- [15] E. P. Ficaro, J. A. Fessler, R. J. Ackerman, S. R. Pitt, W. L. Rogers, and M. Schwaiger, "Clinical application of attenuation correction for cardiac SPECT studies," *Eur. J. Nuc. Med. (Eur. Assoc. of Nuc. Med. Cong.)*, vol. 20, no. 10, p. 143, Oct. 1993.
- [14] S. Minoshima, R. A. Koeppe, J. A. Fessler, M. A. Mintun, K. L. Berger, S. F. Taylor, and D. E. Kuhl, "Integrated and automated data analysis method for neuronal activation studies using O-15 water PET," *Annals of nuclear medicine*, vol. 7, S74-5, 1993, Supplement.
- [13] S. Minoshima, K. A. Frey, R. A. Koeppe, K. L. Berger, J. A. Fessler, D. E. Kuhl, and K. L. Casey, "PET localization of response to thermal stimuli in human," *J. Cerebral Blood Flow and Metabolism*, vol. 13, S260, 1993, Suppl 1.
- [12] W. L. Rogers, N. H. Clinthorne, J. A. Fessler, D. Chien, Y. Zhang, L. Hua, M. Usman, and A. O. Hero, "The view from the top: What's it worth?" *J. Nuc. Med. (Abs. Book)*, vol. 34, no. 5, p. 190, May 1993.
- [11] D. E. Kuhl, R. A. Koeppe, J. A. Fessler, *et al.*, "In vivo mapping of cholinergic neurons in the human brain using SPECT and (-)-5-[I-123] Iodobenzovesamical (IBVM)," *J. Nuc. Med. (Abs. Book)*, vol. 34, no. 5, p. 25, May 1993.
- [10] R. A. Koeppe, S. Minoshima, and J. A. Fessler, "Co-registration methods for three-dimensional functional brain images: Performance evaluation and application," *J. Nuc. Med. (Abs. Book)*, vol. 34, no. 5, p. 70, May 1993.

- [9] N. H. Clinthorne and J. A. Fessler, "SPECT and PET reconstruction methods accounting for head-motion," *J. Nuc. Med. (Abs. Book)*, vol. 34, no. 5, p. 91, May 1993.
- [8] A. O. Hero and J. A. Fessler, "Recursive CR-type bounds and the EM algorithm: Applications to ECT image reconstruction," in *Intl. Symp. on Information Theory*, 1993, p. 131.
- [7] Y. Zhang, N. H. Clinthorne, J. A. Fessler, and W. L. Rogers, "A fast iterative reconstruction method based on functional regions," *J. Nuc. Med. (Abs. Book)*, vol. 33, no. 5, p. 831, May 1992.
- [6] R. A. Koeppe, K. A. Frey, J. A. Zubieta, J. A. Fessler, *et al.*, "Tracer kinetic analysis of [ $^{11}\text{C}$ ] N-Methyl-4-Piperidyl benzilate binding to muscarinic cholinergic receptors," *J. Nuc. Med. (Abs. Book)*, vol. 33, no. 5, p. 882, May 1992.
- [5] N. H. Clinthorne, X. H. Wang, and J. A. Fessler, "Multi-energy maximum-likelihood reconstruction algorithms for SPECT and PET," *J. Nuc. Med. (Abs. Book)*, vol. 33, no. 5, p. 831, May 1992.
- [4] J. A. Fessler, W. L. Rogers, N. H. Clinthorne, G. D. Hutchins, and R. A. Koeppe, "Quantification of the human basal ganglia via iterative reconstruction," *J. Nuc. Med. (Abs. Book)*, vol. 33, no. 5, p. 878, May 1992.
- [3] J. A. Stamos, N. H. Clinthorne, J. A. Fessler, and W. L. Rogers, "Object and algorithm dependence of bias and variance for ART, MART, and the EM algorithm," *J. Nuc. Med. (Abs. Book)*, vol. 32, no. 5, p. 986, May 1991.
- [2] P. C. Chiao, W. L. Rogers, A. O. Hero, and J. A. Fessler, "Effects of side information on myocardial blood flow estimation and optimal SPECT collimator resolution," *J. Nuc. Med. (Abs. Book)*, vol. 32, no. 5, p. 946, May 1991.
- [1] J. A. Fessler and A. Macovski, "Nonparametric tracking of shift and shape functions in medical images," in *Proc. IEEE Wkshp. on Multidim. Signal Proc.*, 1989, p. 46.