ADDRESS

EECS Dept., 1301 Beal Ave. (734) 763-1434
University of Michigan fessler@umich.edu
Ann Arbor, MI 48109-2122 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)

07/24-06/25	Interim Chair, ECE Division, Dept. of Electrical Engineering and Computer Science
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

2024	UM William L. Root Distinguished University Professor of EECS
2024	Fellow of Asia-Pacific Artificial Intelligence Association (AAIA)
2023	UM Steven Attwood Award (College of Engineering highest faculty award)
2022	IEEE Signal Processing Society: Outstanding Editorial Board Member Award
2022	UM Eta Kappa Nu (HKN) ECE Professor of the Year Award
2016	UM 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 Feb. 2022 Med. Phys. paper on DblurDoseNet
2020	ISMRM *Magna Cum Laude* Merit Award to Steven Whitaker with Gopal Nataraj & Jon-Fredrik Nielsen
2020	ISMRM *Magna Cum Laude* 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 since 1990.

ASPIRE A sparse iterative reconstruction library.
Compiled program available online since 1995. Over 350 registered users internationally.

NUFFT Matlab toolbox for nonuniform fast Fourier transform since 2003

MIRT Michigan image reconstruction toolbox, in Matlab and Julia

PATENTS

Patents #1, #2, #3, #5, #7 and #10 below have been licensed by medical imaging companies

2025-03-04 15. U.S. Patent 12,241,953
Guanhua Wang, D C Noll, J A Fessler
Systems and methods for accelerated magnetic resonance imaging (MRI) reconstruction

2025-01-07 14. U.S. Patent 12,190,533
Theodore Norris, Zhengyu Huang, J A Fessler, Zhaohui Zhong
Focal stack camera as secure imaging device and image manipulation detection method

2019-04-02 13. U.S. Patent 10247801
Hao Sun, J F Nielsen, D C Noll, J A Fessler
Method of MRI imaging using a spectrally designed pulse

2017-08-01 12. U.S. Patent 9721361
Evgeny Drapkin, Jean-Baptiste Thibault, Debashish Pal, Somesh Srivastava Ryan Thome, Madison McGaffin, J A Fessler, Donghwan Kim
Systems and methods for parallel processing of imaging information *(Duality/BSS)*

2016-11-29 11. U.S. Patent 9508163
Zhou Yu, Bruno De Man, Jean-Baptiste Thibault, Debashish Pal, Lin Fu, Charles A. Bouman, J A Fessler, Hung Nien
Accelerated iterative reconstruction *(AL-OS)*

2016-11-08 10. U.S. Patent 9489752
Donghwan Kim, Sathish Ramani, J A Fessler, Lin Fu, Bruno De Man
Ordered subsets with momentum for X-ray CT image reconstruction

2016-08-02 9. U.S. Patent 9406154
Lin Fu, Madison G. McGaffin, Zhou Yu, Jean-Baptiste Thibault, Sathish Ramani, J A Fessler, Bruno K. B. De Man, Dabashish Pal
Iterative reconstruction in image formation *(channelized preconditioners)*

2015-02-17 8. U.S. Patent 8958660
Debashish Pal, Donghwan Kim, Janghwan Cho, J A Fessler, Jean-Baptiste Thibault, Zhou Yu, Somesh Srivastava, Lin Fu, Bruno Kristiaan Bernard De Man
Method and apparatus for iterative reconstruction *(Nonuniform OS)*

2014-12-16 7. U.S. Patent 8913805
Yong Long, J A Fessler, James M Balter
Three-dimensional forward and back-projection methods *(separable footprint)*

2014-11-11 6. U.S. Patent 8885975
Zhou Yu, Bruno Kristiaan Bernard De Man, Jean-Baptiste Thibault, Debashish Pal, Lin Fu, Charles Bouman, Ken Sauer, Sathish Ramani, J A Fessler and Somesh Srivastava
Method and apparatus for iterative reconstruction *(ADMM)*

2013-09-17 5. U.S. Patent 8538099
J A Fessler and Jiang Hsieh
Method and system for controlling image reconstruction *(adaptive parameters)*

2012-07-31 4. U.S. Patent 8233682
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
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
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
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

2025-02-07 (Disclosure) J A Fessler, Yun Jiang, Hongze Yu
Bilevel optimized implicit neural representation for scan-specific accelerated MRI reconstruction

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

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
2012-04-25	(Disclosure) Sathish Ramani, J A Fessler Splitting-based algorithms for X-ray CT reconstruction
2011-06	(Provisional patent application) Zhong He, Christopher G. Wahl, J A Fessler, Jason Jaworski Isotope-imaging integrated deconvolution
2008-01	(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	OVPR 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

9/2024-6/2025 CoE Space Committee, Co-Chair
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

7/2024-6/2025 ECE Division, Interim Chair
7/2024-6/2025 ECE Executive Committee, Chair
7/2024-6/2025 ECE Administrative Committee, Chair
7/2024-6/2025 ECE Internal Honors and Awards Committee, Chair
9/2020-8/2022 ECE External Honors and Awards Committee, Member
7/2024-6/2025 EECS Administrative Committee, Member
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
2014-2024	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
2007-2011	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
	Conference Planning
2022	ISBI Awards Committee Member
2018-9	IEEE SPS TC Liason for ISBI
2018	Special session on Smart Imaging at ISBI 2018 Co-organizer
2012-2022	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, *Conference Co-chair* 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

Conference Reviews

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

2025	Stanford EE Department Visiting Committee
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 Parternship 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	60	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 *Computational MRI in the deep learning era: The two facets of acquisition and image reconstruction*
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 *Basic introduction to machine learning*
ISMRM course on Machine Learning: Everything You Wanted to Know

07/14/20 *Data-driven methods for medical image reconstruction*
SIAM 2020 Imaging Science tutorial course

10/14/19 *Tutorial on Julia programming for computational imaging*
2019 IMA Workshop on Computational Imaging

04/08/19 *Recent advances in acquisition and reconstruction for compressed sensing MRI*
ISBI 2019 tutorial course with Philippe Ciuciu

06/16/18 *Limitations and caveats of deep learning*
ISMRM course on deep learning: Everything you want to know

08/30/12 *Assessment of image quality for the new CT: Statistical reconstruction methods*
AAPM Imaging educational course

08/30/12 *Limits of dose reduction in CT: Statistical reconstruction methods*
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 ≈ 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

10/14/24 KLA Engineering Conference
Efficient generative models for computational imaging

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

5/23/24 * Xiang, Haowei (ECE) (with D. Noll)
Advanced image reconstruction and sampling pattern optimization in silent MRI
todo, todo

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) *Geomtric 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. Esedoḡlu) *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)
Diffusion models for large-scale image reconstruction problems

Jacobson, Andrea (BME) (with J. Nielsen)
Quantitative MRI

Jia, Yixuan (Isaac) (ECE) (with Q. Qu)
SPECT imaging using machine learning methods

Jones, Robert (ECE) (with J. Balter)
MRI

Kardonik, Sophia (ECE) (with D. Noll)
MRI

Murgiua, Amaya (ECE) (with J. Nielsen)
Quantitive MRI

Najarian, Cyrus (BME/MSTP) (with J. Nielsen)
MRI

Salazar, Javier (ECE) (with L. Balzano)
Subspace learning methods

Yu, Hongze (ECE) (with Y. Jiang)
Quantitative MRI

PH.D. DISSERTATION COMMITTEES - PAST

1/27/25	1. Mariama Salifu (BME) *Strategies for correcting respiration-induced B0 variations in oscillating steady-state functional MRI (OSS-fMRI)*
8/27/24	2. Li, Mingchen (ECE) *Toward effective neural architectures and algorithms for generalizable deep learning*
7/23/24	3. Wang, Xiaokai (BME) *Imaging and modeling gastric motor functions in rats and humans*
4/12/24	4. Gupta, Dinank (BME) *MRI guidance of transcranial histotripsy treatment*
3/5/24	5. Liu, Bowen (ECE) *Deep signal compression with feature representation learning*
12/15/23	6. Zou, Jiaren (BME) *Data-driven joint optimization of acquisition and reconstruction of quantitative MRI*
9/1/23	7. Schwartz, Jonathan (MSE) *Breaking dose limitations for high-resolution spectroscopy with fused multi-modal electron microscopy*
4/10/23	8. Lu, Ning (BME) *Transcranial MR-guided histotripsy (TcMRgHt) for brain tumor treatment*
3/23/23	9. Sarwar, Tuba (ECE) *Optics-free UV/VIS optical spectrometer*
2/20/23	10. 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	* 11. Gilman, Kyle (EECS) *Scalable algorithms using optimization on orthogonal matrix manifolds*
8/4/22	12. Zhang, Junming (EECS) *3D scene understanding with deep learning*
6/8/22	13. Diaz, Julio (NERS) *Radiation transmission imaging applications for nuclear reactor systems*
6/7/22	14. Srinivasan Ramanagopal, Manikandasriram (Robotics) *Thermal infrared for robot vision in the field*
5/5/22	15. Whiteman, Andrew (Biostat) *Bayesian analysis of neuroimage data using Gaussian process priors*
5/4/22	16. Sengupta, Aunnasha (ECE) *In silico tools for investigating the performance of breast cancer imaging technologies*
12/15/21	* 17. Muthukrishnan, Harini (CSE) *Improving multi-GPU strong scaling through optimization of fine-grained transfers*
11/5/21	18. Wittbrodt, Audelia (Appl Phys) *A Monte Carlo twist on the unscented Kalman filter for rare event prediction in non-linear systems*
9/2/21	* 19. Nwadeyi, Valerie (NERS) *An MLEM approach to range verification for proton beam therapy using 3-D position sensitive CdZnTe*
8/9/21	* 20. Huang, Zhengyu (EECS) *Novel imaging systems using nanophotonic devices*

7/22/21 21. 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 22. Zhang, Yizhen (ECE)
Grounding language learning in vision for artificial intelligence and brain research

6/4/21 23. Steinberger, William (NERS)
A handheld dual particle imager for imaging and characterizing special nuclear material

12/22/20 * 24. Luo, Tianrui (BME)
MRI excitation pulse design and image reconstruction for accelerated neuroimaging

12/17/20 * 25. West, Brendan (CSE)
Streaming architectures for medical image reconstruction

6/25/20 26. Wei, Lise (Appl Phys)
Medical image analytics (radiomics) with machine/deep learning for outcome modeling in radiation oncology

5/28/20 * 27. Shah, Niral (NERS)
Adaptive imaging with a cylindrical, time-encoded imaging system

3/18/20 * 28. Shy, Dan (NERS)
Super-MeV Compton imaging and other projects using pixelated CdZnTe

1/13/20 29. Prasadan, Arvind (EECS)
Learning, inference, and unmixing of weak, structured signals in noise

12/19/19 30. Cao, Amos (BME)
Methods for physiological artifact correction in oscillating steady state imaging

9/13/19 31. LeBlanc, Joel (ECE)
Optical system identification for passive electro-optical imaging

3/20/19 32. Williams, Bennett (NERS)
Applications of principal component analysis for position-sensitive semiconductor detectors

2/27/19 33. Goodman, David (NERS)
Passive characterization of unknown spaces using large-volume, pixelated CdZnTe

4/25/18 * 34. Chu, Jiyang (NERS)
Advanced imaging algorithms with pixelated CdZnTe detector array

3/12/18 35. Jintamethasawat, Rungroj (BME)
Limited angle ultrasound tomography of the compressed breast

1/10/18 36. Liang, Albert (BME)
Investigation of the performance of photon counting arrays Based on polycrystalline silicon thin-film transistors

1/5/18 * 37. Moore, Brian (ECE)
Robust algorithms for low-rank and sparse matrix models

12/1/17 38. Ropella, Kathleen (BME)
Methods for improving MRI-based conductivity mapping

8/2/17 39. Shahid, Nauman (EE/EPFL)
Scalable low-rank matrix and tensor decomposition on graphs

7/28/17 40. Cha, Kenny Heekon (BME)
Computer-aided image analysis and decision support system for bladder cancer

7/20/17 41. Li, Jie (ECE)
Place recognition and localization for multi-modality underwater navigation with vision and acoustic sensors

6/16/17 * 42. Lien, Miao-Bin (ECE)
Problems in scattering and imaging

5/4/17 43. Hamel, Michael (NERS)
A stochastic imaging technique for spatio-spectral characterization of special nuclear material

4/4/17 * 44. Yoon, Seongjin (NAME)
Electron beam X-ray computed tomography for multiphase flows and an experimental study of inter-channel mixing

3/30/17 * 45. Sampson, Richard (CSE)
Architectural support for medical imaging

3/22/17 46. Zhu, Yiying (BME)
Assessment and control of a cavitation-enabled therapy for minimally invasive myocardial reduction

3/20/17 47. Zhao, Chumin (ECE)
High resolution active pixel sensor X-ray detectors for digital breast tomosynthesis

1/18/17 48. Weng, Xin (ME)
A simplified phase display system for 3D surface measurement and abnormal surface pattern detection

1/13/17 49. Bevill, Aaron (NERS)
Uncertainty quantification in emission quantitative imaging

1/12/17 50. Brown, Steven (NERS)
Time-encoded thermal neutron imaging using large-volume pixelated CdZnTe detectors

12/13/16 51. Rowland, David (Biophysics)
Improving the scope and quality of single-molecule data analysis

8/26/16 52. Cho, Hyun Jeong (ECE)
Autofocus and back-projection in synthetic aperture radar imaging

7/15/16 53. Polack, J. Kyle (NERS)
A maximum likelihood approach for localizing and characterizing special nuclear material with a dual particle imager

1/12/16 54. Chu, Alan (BME)
Simultaneous multislice functional magnetic resonance imaging

12/17/15 55. Prelee, Matt (ECE)
Manhattan cutset sampling and sensor networks

11/9/15 56. Chen, Yu-Hui (ECE)
Multimodal image fusion and its applications

5/14/15 57. Zhai, Yuanhao (ECE)
Perceptual image similarity metrics and applications

12/17/14 58. Watanabe, Takanori (ECE)
Scalable machine learning methods for massive biomedical data

7/3/14 59. Tsai, Grace (ECE)
On-line, incremental visual scene understanding for an indoor navigating robot

4/16/14 60. Joshi, Sonal (NERS)
Coded aperture imaging applied to pixelated CdZnTe detectors

1/9/14 61. Liu, Elson (ECE)
Immersion scatterometry for nanoscale grating topography extraction

12/11/13 62. Tsiligkaridis, Theodoros (ECE)
High dimensional separable representations for statistical estimation and controlled sensing

12/6/13 63. Jin, Curtis (ECE)
New methods and theory for increasing transmission of light through highly-scattering random media

5/17/13 64. Choi, Wongun (ECE)
Understanding complex human behaviour in images and videos

8/15/13 65. Park, Se Un (ECE)
Reconstruction, classification, and segmentation for computational microscopy

5/9/13 66. Shearer, Paul (Appl. Math.)
Separable inverse problems, blind deconvolution, and stray light correction for extreme ultraviolet solar images

5/7/13 67. Peng, Fei (IoE)
Optimization methods for volumetric modulated arc therapy and radiation therapy under uncertainty

3/28/13 68. Park, Jae-Young (ECE)
Compressed sensing in multi-signal environments

1/14/13 69. Liu, Tzu-Yu (Joyce) (EE)
Statistical learning for sample-limited high-dimensional problems with application to biomedical data

12/18/12 * 70. Jaworski, Jason (NERS)
Compton imaging algorithms for position-sensitive gamma-ray detectors in the presence of motion

4/10/12 71. Sricharan, Kumar (ECE)
Neighborhood graphs for estimation of density functionals

1/12/12 72. Xu, Li (Mech. Eng.)
High quality 3D shape reconstruction via digital refocusing and pupil apodization in multi-wavelength holographic interferometry

1/6/12 73. Hooi, Fong Ming (BME)
Optimized beamforming and limited angle tomography algorithms with 2D reconfigurable arrays

12/16/11 74. Haynes, Mark (ECE)
Full-wave nonlinear inverse scattering for acoustic and electromagnetic breast imaging

9/14/11 75. Wang, Weiyi (NERS)
Techniques and applications of Compton imaging for position-sensitive gamma-ray detectors

8/12/11 76. Lee, Gyemin (ECE)
Fusing partially-observed flow cytometry data

6/23/11 * 77. Wahl, Christopher G. (NERS)
Imaging, detection, and identification algorithms for position-sensitive gamma-ray detectors

4/20/11 78. Dasika, Ganesh (CSE)
Power-efficient application- and domain-specific processors

4/11/11 79. Huh, Sam Seoung (BME)
Surgical imaging probes with positron emitting radiotracers

1/12/11 80. Sarkar, Saradwata (BME)
Quantitative assessment of volume change in lesions using image registration

11/23/10 * 81. Musheinesh, Malakeh (ECE)
Model-based image reconstruction for THz imaging systems

11/10/10 * 82. Kim, Yoon-Chung Christie (BME)
Non-Cartesian parallel image reconstruction for functional MRI

7/7/10 83. Sinha, Sumedha P. (BME)
Breast cancer detection on automated 3D ultrasound with co-localized 3D X-ray

5/10/10 84. Lee, Benjamin C. (ECE)
Conditioning of and algorithms for image reconstruction from irregular frequency samples

5/20/10 85. Al-Salem, Faisal (ECE)
Blind super-resolution from multiple undersampled images using sampling diversity

1/8/10 86. Yee, Victoria (ECE)
Studies on the asymptotic behavior of parameters in optimal scalar quantization

2/20/09 87. Pandey, Kiran (BME)
Mitigation of motion artifacts in functional MRI: A combined acquisition, reconstruction and post processing approach

9/24/08 88. Zhang, Hui (Biostatistics)
Advances in modeling and inference of neuroimaging data

9/12/08 89. Peng, Jinzheng (ECE)
Polarimetric microwave radiometer calibration

9/10/08 90. Kowash, Ben (NERS)
A rotating modulation imager for the orphan source search problem

6/16/08 91. Rao, Arvind (Bioinformatics/ECE)
Prospective identification of long-range transcriptional enhancers via integrative genomics

5/2/08 92. Han, Li (BME)
Statistical performance evaluation, system modeling, distributed computation and signal pattern matching for a Compton medical imaging system

12/17/07 * 93. Grissom, Will (BME)
RF pulse design for parallel excitation in MRI

10/17/07 94. Dehmollaian, Mojtaba (ECE)
Hybrid EM models for purpose of detection and identification of visually obscured targets

10/3/07 95. Ulfarsson, Magnus (ECE)
Model based principal component analysis with application to fMRI

7/23/07 96. Rangarajan, Raghuram (ECE)
Resource constrained adaptive sensing

8/10/06 97. Shah, Siddarth (BME)
Deconvolution algorithms for fluorescence and electron microscopy

5/8/06 * 98. Blatt, Doron (ECE)
Performance evaluation and optimization for inference systems: model uncertainty, distributed implementation, and active sensing

5/2/06 * 99. Ting, Michael (ECE)
Signal processing for magnetic resonance field microscopy (MRFM)

8/29/05 100. Costa, José (ECE)
Random graphs for structure discovery in high-dimensional data

5/17/05 101. Steele, Derek (BME)
Three-dimensional, static displacement, stimulated echo, magnetic resonance elasticity imaging

3/31/05 102. Park, Sang-June (NERS)
A very high resolution small animal PET based on the Compton PET concept

2/4/05 103. Kreucher, Chris (ECE)
An information-based approach for sensor resource allocation

01/25/05 104. Shih, Meng-Fu (ECE)
Unicast internet tomography

1/11/05 105. Neemuchwala, Huzefa (BME)
Entropic graphs for image registration

6/15/04 106. Bartsch, Mark (ECE)
Automated singer identification in polyphonic music

4/26/04 107. Xi, Bowei (Stat)
Estimating internal link loss rates using active network tomography

3/5/04 108. Chakravorty, Suman (AERO)
Design and optimal control of multi-spacecraft interferometric imaging systems

12/3/03 109. Holt, Kevin (ECE)
Methods and design algorithms for predictive quantization of signals and images

07/30/03 110. Torres-Fernandez, Jose E. (ECE)
Construction of signal-dependent Cohen's class time-frequency representations using iterative blind deconvolution

04/25/03 111. Mills, Kurt (ECE)
Image plane holography

04/25/03 112. Wang, Yue (Biostatistics)
Statistical methods for biomarkers

10/18/02 113. Wang, Yao (BME)
Forward-viewing ring annular array in intravascular ultrasound imaging

07/24/02 114. Kragh, Thomas (ECE)
Tradeoffs and limitations in statistically based image reconstruction problems

08/12/02 115. Sharp, Greg (CSE)
Automatic and stable multiview 3D surface registration

06/13/02 116. Slyz, Marko (ECE)
Lossless image compression using combinations of simple components

01/23/02 117. Li, Jia (ECE)
Three dimensional shape modeling: Segmentation, reconstruction, and registration

07/23/01 118. Cheng, Corey (ECE)
Visualization, measurement, and interpolation of head-related transfer functions with applications in electro-acoustic music

01/19/01 119. Kim, Hyung Soo (ECE)
Adaptive target detection in radar imaging

01/04/01 120. Nickel, Robert (ECE)
Generalized scale transforms, theory and applications

12/18/00 121. Ghalib, Ali M. (Civ. Env. Eng.)
Laboratory and in-situ soil characterization by computer vision

08/29/00 122. Hua, Chia-ho (BME)
Compton imaging system development and performance assessment

05/24/00 123. Lin, Steve (CSE)
Photometric modeling of specular and diffuse appearance

05/19/00 * 124. Piramuthu, Robinson (ECE)
Robust fusion of MRI and ECT data, and acceleration of EM algorithm using proximal point approach

01/25/00 125. Kwak, Byung-Jae (ECE)
Nonlinear system identification with an application to hydraulic actuator friction dynamics

10/25/99 126. Park, Jiyoung (NERS)
Neutron scattering correction functions for neutron radiographic images

11/23/99 127. 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

07/14/99 128. Crowe, John R. (ECE)
Ultrasonic arterial imaging with an interluminal catheter array

05/14/99 129. Sterian, Andrew D. (ECE)
Model-based segmentation of time-frequency images for musical transcription

04/29/99 130. Hunter, David (Statistics)
Optimization transfer algorithms in statistics

04/19/99 131. Tashkandi, Esam Ahmed (Oral Health Sciences)
Accuracy of using spectral color transformation in the prediction of tooth colors

01/25/99 132. Wan, Hong (BME)
Thermal dose optimization for ultrasound tissue ablation

08/03/98 133. Moo, Peter W. (ECE)
Asymptotic analysis of lattice-based quantization

01/12/98 134. Lubinski, Mark A. (BME)
Speckle tracking techniques for ultrasound elasticity imaging

11/24/97 135. Krishnan, Sriram (ECE)
Adaptive and nonlinear ultrasound imaging

09/15/97 136. Bell, Amy E. (ECE)
1D and 2D phase retrieval by solving linear systems of equations and by using the wavelet transform

07/22/97 137. Haddadin, Osama S. (ECE)
Ultrasound inverse scattering for tomographic imaging and self-focusing arrays

05/14/97 138. Rajashri Rajaram Joshi (ECE)
Multiresolution fast algorithms for one-dimensional inverse scattering and linear least-squares estimation

04/03/97 139. Guevara, Rowena Cristina L. (ECE)
Modal distribution analysis and sum of sinusoids synthesis of piano tones

01/03/97 140. Ng, Chor-Yi (BME)
Preliminary studies on the feasibility of addition of vertex view to conventional brain SPECT imaging

10/28/96 141. Sharfer, Ilan (ECE)
Recursive algorithms for digital communications using the discrete wavelet transform

09/09/96 142. Ribas-Corbera, Jordi (ECE)
Optimizing the motion vector accuracies in block-based video coding

05/17/96 * 143. 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 * 144. Zhang, Yong (BME)
Improved SPECT radioactivity quantification using MRI side information

08/04/94 * 145. 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

12/16/22 146. Guillaume, Daval-Frérot (CEA Saclay)
Deep neural networks for MR image reconstruction and B0 inhomogeneity correction in non-Cartesian susceptibility weighted imaging at 3 Tesla

2/25/22 147. Yaman, Burhaneddin (Univ. of Minnesotat)
Self-supervised physics-guided deep learning for solving inverse problems in imaging

04/12/19 148. Chapdelaine, Camille (Universite Paris-Saclay)
Bayesian iterative reconstruction methods for 3D X-ray computed tomography

11/11/14 149. Ravishankar, Sai Prasad (ECE, Illinois)
Adaptive sparse representations and their applications

2/4/08 150. Fattahi, Shahin (ECE, Univ. of Western Ontario)
A unified investigation of noise-amplification in sensitivity encoded MRI

PH.D. DISSERTATION COMMITTEES - CURRENT

151. Song, Bowen (ECE)
Enhancing the reliability and efficiency of high-dimensional and high-resolution image restoration

152. He, Yongli (Appl. Phys.)
Spatially- and velocity-selective tailored RF pulse design

153. Fung, Rex (BME)
High spatiotemporal resolution functional magnetic resonance imaging in the brainstem

154. Griesler, Tom (BME)
MRF for DCE

155. Prabhjot, Kaur (NERS)
Improving the probabilistic method of sequence reconstruction and developing a 3D Compton imaging system with CdZnTe

156. Manassa, Jason (MSE)
Optimal 3D chemical imaging with fused multi-modal tomography

157. Muppala, Aditya Varma (ECE)
Radar imaging systems with sparse arrays

158. Hougen, Conrad (ECE)
Network models for learning uncertain and multimodal data

159. Rice, Alexander (NERS)
Coded aperture imaging and simultaneous positron emission imaging and single-photon emission imaging

160. Shi, Naichen (IOE)
Federated data analytics for the internet of things

161. Ritchie, Alexander (EECS)
Mixtures of nonlinear regressions, online supervised PCA, and instance dependent label noise

162. Cummings, Evan (BME)
MR fingerprinting for fat-water separation using rosettes

M.S. Dissertation Committees - Past

4/21/20	163. 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	164. Kumar Gopalakrishnan (ECE) *Backward-adaptive architectures for progressive image compression*

Graduate Student Directed Study (MS student projects)

2025	Cadavid, Simon (ECE) Heteroscedastic mixture PCA models for CT data
2022	Xu, Alec (ECE) 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 algorthms 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	Vaideeswaran, 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
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: *CIF: Small: Learning low-dimensional representations with heteroscedastic data sources*
NSF 2331590
1/1/24-12/31/26

Principal Investigator: Doug Noll
Title: *Silent functional MRI using looping star*
NIH R01 EB 035618
3/1/25-1/31/29

Principal Investigator: Yuni Dewaraja
Title: *Enhancing radioligand therapy for prostate cancer with biomarker and dosimetry guided personalization*
NIH CA 289631
9/1/24-8/31/29

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, nctx to 5/31/26

GRANT SUPPORT - PENDING

Principal Investigator: Yun Jiang
Title: *3D high resolution magnetic resonance fingerprinting for prostate cancer*
NIH R37
8/1/27-7/31/29

Principal Investigator: Luis Hernandez-Garcia
Title: *MR imaging the velocity spectrum in the human brain*
NIH R21
12/1/25 383,843 total

Improved flow imaging

Principal Investigator: Qing Qu, Liyue Shen
Title: *Collaborative Research: III: Medium: Diffusion models for scientific imaging: Towards better modeling, efficiency, and robustness*
NSF 2504136
5/1/25-4/31/28

Principal Investigator: Luis Hernandez-Garcia
Title: *Development of layer specific FMRI for clinical scanners*
NIH R01 EB035156
4/1/25 3,448,499 total
Improved fMRI

Principal Investigator: Zhongming Liu
Title: *Self-supervised learning for representing and decoding brain activity linked to behavior*
NIH
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: Liyue Shen
Title: *Efficient diffusion models for scientific machine learning*
UM MICDE
9/1/23-8/31/24

Principal Investigator: Jeffrey A. Fessler
Title: *Limited-view CT reconstruction with minimal training data*
LANL 612552
10/15/20-9/30/24

Principal Investigator: Jon Nielsen
Title: *Toward robust whole-brain 3D functional MRI at 3T with reduced signal loss artifacts*
NIH R21 AG061839
2/15/19-1/31/21, NCTX to 1/31/23 185,924 y2
Improve fMRI excitation and reconstruction

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: 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

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.

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Refereed Journal Papers

[248] A. V. Muppala, J. A. Fessler, and K. Sarabandi, "FMCW inverse circular synthetic aperture radar using a fast time-domain reconstruction," *IEEE Trans. Microwave Theory & Tech.*, vol. 73, no. 3, 1799–808, 2025.

[247] J. S. Cavazos, J. A. Fessler, and L. Balzano, "ALPCAH: Subspace learning for sample-wise heteroscedastic data," *IEEE Trans. Sig. Proc.*, vol. 73, 876–86, Jan. 2025.

[246] 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*, vol. 10, 1476–88, 2024.

[245] Z. Li, J. Hu, X. Xu, L. Shen, and J. A. Fessler, "Accelerated Wirtinger flow with score-based image priors for holographic phase retrieval in Poisson-Gaussian noise conditions," *IEEE Trans. Computational Imaging*, vol. 10, 1384–99, 2024.

[244] 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.*, vol. 69, no. 11, p. 115 003, May 2024.

[243] D. Sanderson, 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)," *Med. Phys.*, vol. 51, no. 8, 5204–13, Aug. 2024.

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[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.

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[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.

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[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.

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