

ADDRESS

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

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

EDUCATION

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

ACADEMIC APPOINTMENTS (all at the University of Michigan)

07/24-06/25	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
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AFFILIATIONS

2025-present	American Association for the Advancement of Science (AAAS)
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

2025 ISMRM Senior Fellow
 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

2025 ISMRM *Magna Cum Laude* Merit Award to Rodrigo Lobos
 with Doug Noll & co-authors
 2025 ISMRM *Summa Cum Laude* Merit Award to Amaya Murguia
 with Andi Jacobson & co-authors

- 2025 ISMRM *Summa Cum Laude* Merit Award to Jiayao Yang
with Yun Jiang & co-authors
- 2025 ISMRM *Summa Cum Laude* Merit Award to Hongze Yu
with Yun Jiang & co-authors
- 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

- 2026-05-15 16. U.S. Patent 12,625,211
 Haowei Xiang, D C Noll, J A Fessler
 Model-based reconstruction for looping-star pulse sequences in MRI
- 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 10,247,801
 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 9,721,361
 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 9,508,163
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 9,489,752
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 9,406,154
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 8,958,660
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 8,913,805
Yong Long, J A Fessler, James M Balter
Three-dimensional forward and back-projection methods (*separable footprint*)
- 2014-11-11 6. U.S. Patent 8,885,975
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 8,538,099
J A Fessler and Jiang Hsieh
Method and system for controlling image reconstruction (*adaptive parameters*)
- 2012-07-31 4. U.S. Patent 8,233,682
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 7,885,371
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 6,754,298
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 6,507,633
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

2025-11-18	(Disclosure) J A Fessler, Yun Jiang, Hongze Yu, Christopher Keen Joint implicit neural representation for fast scan-specific magnetic resonance fingerprinting
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
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	OVRP faculty advisory group on research data, Member
9/2021-8/2024	Faculty grievance panel, external member
9/2021-5/2022	CRLT Faculty Advisory Board
9/2020-8/2022	Provost's Faculty Advisory Committee, Member
5/2020-6/2024	Medicine BRCF Microscopy Core, Advisory Board Member
5/2015-1/2016	CoE Dean Search Advisory Committee, Chair
1/2014-6/2016	Rackham Mentoring Awards Selection Committee, Member
7/2012-6/2015	Rackham Executive Board, Elected Member
9/2013-8/2014	CRLT-Faculty special interest group: Instructional technology

ACADEMIC SERVICE: COLLEGE OF ENGINEERING

9/2025-6/2027	CoE Honors and Awards Committee, Member
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

8/2025-6/2026	ECE Ad hoc Committee on Foundations of AI FEP, Member
8/2025-6/2026	ECE External Honors and Awards Committee, Chair
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

2025-2028 ISMRM Annual Meeting Program Committee Member

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

2026 Conference on Neural Information Processing Systems (NeurIPS)

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

2026	UM NIH P41 Microsystems-Based Imaging Systems Center, internal advisory board member
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	ISMIRM 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

2026-03-24	US/Israel Binational Science Foundation proposal review
2023-10-31	Banff International Research Station: proposal review
2023-08-26	Belgium Fund for Scientific Research: proposal review
2023-07-12	NIH NIBIB p41 review panel
2021-06-17	NIH ITD study section
2020-07-24	NIH K/R13 study section
2020-06-18	NIH ITD study section
2020-05-17	UM MICDE proposal review
2020-04	Israel National Science Foundation, proposal review
2020-03-25	UM MICDE pre-proposal review
2019-03-29	NIH study section: R13/K review
2018-06-07	NIH NIBIB p41 review panel
2019-01-04	Villum Foundation: proposal review
2017-08-19	Belgium Fund for Scientific Research: proposal review
2016-12-06	NIH study section: R13 review
2015-06-24	NIH study section: NIBIB Quantum Program (U01)
2014-10-06	NIH study section: Medical Imaging (MEDI)
2014-07-02	NIH study section: Mentored Career Development Award (K) applications
2013-10-07	NIH study section: Biomedical Imaging Technology - A
2013-06-07	NIH study section: Biomedical Imaging Technology - A
2013-02	NIH proposal review for Biomedical Imaging Technology - A
2012-10-04	NIH study section: Biomedical Imaging Technology - A
2012-06-24	Swiss National Science Foundation proposal review
2012-05-15	NIH SBIR Phase II Cancer Therapeutics Development: proposal reviews
2012-01-21	Swiss National Science Foundation proposal review
2011-12	NASA Postdoctoral Program review
2011-10-14	Reviewed proposal for Netherlands Organisation for Scientific Research (NWO)
2011-10-03	NIH study section: Biomedical Imaging Technology - A
2011-06-28	Swiss National Science Foundation proposal review
2011-04	NASA Postdoctoral Program review
2011-01-28	Michigan African Presidential Scholar proposal review
2011-02-07	NIH study section: In Vivo Imaging and Bioengineering Research, R21/R01 props.
2010-07-26	UM OVPR Faculty Grant review
2010-06-21	NIH study section: In Vivo Imaging and Bioengineering Research, R21 proposals
2010-02-13	NIH study section: Academic Industrial Partnership R01 proposals

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

Thesis Reviews

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

Book Reviews

2026-03 Review of Cambridge book proposal
 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
2025	F	89	EECS 551	Matrix methods for Signal Processing...
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	<i>Learning-based image reconstruction</i> Physics keynote for RNSA
2015	<i>Iterative image reconstruction in CT and MRI</i> Fully 3D Image Reconstruction Conference, Newport, RI
2008	<i>Mathematical challenges in magnetic resonance imaging (MRI)</i> SIAM Conference on Imaging Science, San Diego, CA
2008	<i>Signal processing in medical image reconstruction</i> European Signal Processing Conference (EUSIPCO), Lausanne, Switzerland
2008	<i>Model-based image reconstruction in MRI</i> Huangguoshu International Interdisciplinary Conference on Biomedical Mathematics, Huangguoshu, China
1999	<i>Fast converging iterative algorithms for PET</i> The VIII symposium on the medical applications of cyclotrons, Turku, Finland

SHORT COURSES

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

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

EXTERNAL SEMINARS

- 06/15/26 IEEE SPS CI TC Webinar
Efficient score-based diffusion models for imaging inverse problems
- 04/08/26 Brazil synchrotron light source (LNLS)
Efficient generative models for imaging inverse problems
- 02/12/26 Case Western Reserve University, BME Department
Efficient generative models for imaging inverse problems

10/31/25 Washington University St. Louis, EE Department
Efficient generative models for imaging inverse problems

10/17/25 Stanford EE Department
Efficient generative models for imaging inverse problems

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, Hangzhou, China
Optimal first-order convex minimization methods

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

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

- 09/12/16 MSU Comp. Math. Sci. and Engin. Colloquium
Optimal first-order convex minimization methods
- 08/03/16 Technical University Munich
Optimal first-order convex minimization methods
- 03/09/15 Johns Hopkins University, BME Department
Accelerating image reconstruction for low-dose X-ray CT and MRI
- 05/03/13 Purdue University: Integrated Imaging Seminar
Accelerating image reconstruction using variable splitting methods
- 04/16/13 Ann Arbor Optical Society of America
Accelerating image recovery using variable splitting methods
- 03/05/13 Univ. of Southern California
Accelerating image reconstruction using variable splitting methods
- 11/09/12 Univ. of Washington Radiology Imaging Sciences Grand Rounds
Model-based image reconstruction for low-dose X-ray CT
- 10/05/12 FDA
Statistical image reconstruction for X-ray CT: Image quality challenges
- 07/08/11 Universitat Zu Lübeck
Statistical image reconstruction methods for low-dose X-ray CT
- 02/24/11 NIBIB
Innovations required in data reconstruction; NIBIB Summit on Management of Radiation Dose
in Computerized Tomography: Toward the Sub-mSv Exam
- 03/01/10 KLA-Tencor
Nonrigid image registration that preserves topology
- 08/31/09 Johns Hopkins University, Radiology Department
Motion-compensated image reconstruction
- 05/29/09 Mayo Clinic, BME and Radiology Department
Motion-compensated image reconstruction
- 04/16/09 University of Washington, Radiology Department
Motion-compensated image reconstruction
- 03/12/09 Northeastern University, EE Department
Motion-compensated image reconstruction
- 12/02/08 Illinois Institute of Technology, ECE Department
Motion compensation in model-based image reconstruction
- 11/13/08 Ewha University, Seoul, Korea, EE Department
Iterative methods for image reconstruction
- 11/11/08 Beijing University, School of Mathematical Sciences
Motion compensation in model-based image reconstruction
- 09/18/08 University of Illinois, Urbana, BME Department
Model-based image reconstruction with motion-compensation
- 10/11/07 University of Wisconsin, Milwaukee, Physics Department
Iterative methods for image formation in MRI
- 10/10/07 GE Health Care Technologies, Milwaukee, WI
Iterative image reconstruction for X-ray CT
- 05/10/07 Johns Hopkins University, Radiology Department
Motion-corrected PET image reconstruction from respiratory gated data

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- 01/05/96 University of Washington Department of Radiology
Conjugate gradient methods for image reconstruction
- 08/08/95 Nuklearmedizinische Klinik der Technischen Universität München
Statistical methods for image reconstruction
- 06/17/94 Washington University, Midwest Workshop on Iterative Image Reconstruction
Sequential iterative algorithms for image reconstruction
- 12/16/93 Brookhaven National Labs
Penalized-likelihood image reconstruction methods
- 09/11/92 University of Minnesota, Midwest Workshop on Iterative Image Reconstruction
Least squares: algebraic or statistical?
- 05/03/91 University of Chicago, Midwest Workshop on Iterative Image Reconstruction
Gibbs-penalized reconstruction with imperfect boundary information
- 12/05/91 Mathematical Sciences Research Inst., Berkeley, CA
Complete-data space choices for PET reconstruction

SEMINARS AT UM

4/22/26 ECE Industry Day
Efficient GenAI models for medical imaging

10/28/25 UM Statistics seminar
Score-based diffusion models for imaging inverse problems

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 in Science Day
An introduction to score-based generative models

02/22/23 MIDAS AI Bootcamp
Machine learning methods for medical image reconstruction and scan design

04/02/21 UM BME 499.060
Medical image formation using machine learning

03/09/20 UM BME 499.060
Medical image formation using machine learning

04/19/19 UM ECE faculty seminar
Medical image formation using machine learning

12/12/19 UM CSP seminar
Image processing using the Julia language - a tutorial

10/08/18 UM Center for Healthcare Engin. and Patient Safety (CHEPS)
Medical imaging inverse problems using optimization and machine learning

03/26/18 UM IEEE Student Branch
X-ray vision meets machine learning

03/14/18 UM IOE Department
Optimal first-order convex minimization methods for machine learning

12/07/17 UM CSP seminar
Optimal first-order convex minimization methods

06/19/17 UM Radiology
Dynamic MRI image reconstruction using adaptive regularization methods

04/07/17 UM ECE faculty meeting
Taking the engaged learning plunge

10/05/16 UM fMRI engineering group
Spectral RF pulse design for MRI

03/31/16 UM CSP seminar
Inverse problem regularization using sparsity models

03/09/16 UM Michigan Research Community
Inverse problems, medical imaging, and career thoughts

10/30/15 EECS 500 seminar
Model-based image reconstruction using optimization methods

07/01/15 UM fMRI engineering group
Density compensation in non-Cartesian MRI

04/23/15 UM CSP seminar
Accelerating image reconstruction for low-dose X-ray CT and MRI

10/17/14 EECS 500 seminar
Image reconstruction using optimization methods

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

10/06/97	UM Biostatistics Department Nonparametric analysis of statistic images from functional mapping experiments
03/12/96	UM CSPL Seminar Preconditioned conjugate gradient methods for statistical image reconstruction
11/22/95	UM EECS 590 Seminar Statistical methods for image reconstruction in emission tomography
09/30/94	UM Nuclear Medicine Division Image Reconstruction (short course on PET)
02/04/94	UM Statistics Department Space-alternating generalized EM algorithm and applications
11/30/94	UM Bioengineering Program Statistical methods for image reconstruction in nuclear medicine
1994	UM Nuclear Medicine Division Lecture in Positron Emission Tomography course
04/09/92	UM Biostatistics Department Statistical aspects of image reconstruction in positron-emission tomography (PET)
1992	UM Nuclear Medicine Division Lecture in Nuclear Medicine Course for basic scientists

PH.D. DISSERTATIONS CHAIRED

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

- 5/30/13 Matakos, Antonis (EECS)
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, Professor of ECE
- 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, 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, Associate 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, Professor and Dean of Engineering
- 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., Associate Professor
- 04/19/00 Yu, Feng (Dan) (EECS)
Statistical methods for transmission image reconstruction with nonlocal edge-preserving regularization
University of Bristol, Statistics, Senior 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-CHAIR

- 3/19/26 Hu, Jason (EECS) (with L. Shen)
Diffusion models for large-scale and 3D image reconstruction problems
- 3/16/26 * Salazar Cavazos, Javier (ECE) (with L. Balzano)
Learning representations from noisy data and brain imaging: Subspace modeling for heteroscedastic data and deep learning for functional MRI in Alzheimer's disease
KLA, Algorithm Engineer
- 5/23/24 * Xiang, Haowei (ECE) (with D. Noll)
Advanced image reconstruction and sampling pattern optimization in silent MRI
KLA, Algorithm Engineer
- 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. Delaware, Assistant Professor
- 8/9/18 * Williams, Sydney (BME) (with D. Noll)
Constrained and spectral-spatial RF pulse design for magnetic resonance imaging
Universidad Rey Juan Carlos, Assistant Professor
- 3/23/18 * Nataraj, Gopal (EECS) (with J. Nielsen)
Advances in quantitative MRI: acquisition, estimation, and application
Univ. of California, Berkeley, Asst. Res. Engineer
- 3/19/18 * Liu, Lianli (EECS) (with J. Balter)
Optimizing magnetic resonance imaging for image-guided radiotherapy
Stanford University, Clinical Asst. Prof., Radiation Physics
- 12/8/17 * Zheng, Jiabei (EECS) (with H. P. Chan)
Improving image reconstruction for digital breast tomosynthesis
Intel, Research scientist
- 3/23/16 * Muckley, Matthew (BME) (with D. Noll)
Acceleration methods for MRI
Facebook AI Research, Research Engineer

- 4/27/15 * Kim, Jung Kuk (EECS) (with Z. Zhang)
Algorithm and architecture co-design for high performance digital signal processing
Fujitsu Labs of America, Member of Research Staff
- 3/25/15 * Sun, Hao (EECS) (with J. Nielsen)
Topics in steady-state MRI sequences and RF pulse optimization
Apple, Software Engineer
- 11/21/13 Bao, Sid Ying-Ze (EECS) (with S. Savarese)
Geometric and semantic scene understanding
Magic Leap, Senior Software Engineer
- 11/19/13 * Zhao, Feng (BME) (with D. Noll)
Methods for MRI RF pulse design and image reconstruction
KLA-Tencor, Software Engineer
- 8/10/12 * Yoon, Daehyun (EECS) (with D. Noll)
Fast joint design of RF and gradient waveforms for MRI parallel excitation
UCSF, Assistant Professor
- 4/13/11 * Long, Yong (EECS) (with J. Balter)
Statistical image reconstruction and motion estimation for image-guided radiotherapy
SJTU-UM Joint Institute, Assistant Prof.
- 7/9/10 * Kublik (Dupuis), Catherine (Math/AIM) (with S. Esedoğlu)
Topics in PDE-based image processing
Univ. of Dayton, Associate 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 T₂ relaxation*
UIUC, Endowed Professor of Bioengineering
- 05/28/03 Park, Hyunjin (BME) (with C. Meyer)
Adaptive registration and atlas based segmentation
Gachon Univ., S. Korea, 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

- 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
- 6/9/26 Murguia, Amaya (ECE) (with J. Nielsen)
Advances in myelin-sensitive quantitative MR imaging
- Najarian, Cyrus (BME/MSTP) (with J. Nielsen)
Optimizing relaxation exchange imaging sequence parameters to predict histological changes in white matter tissue

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

PH.D. DISSERTATION COMMITTEES - PAST

- | | |
|----------|---|
| 2/11/26 | 1. Song, Bowen (ECE)
<i>Foundation generative models for inverse problems: Image/video restoration, medical image reconstruction, 3D reconstruction, and controllable generation</i> |
| 8/26/25 | 2. Cummings, Evan (BME)
<i>Rosette trajectory cardiac magnetic resonance fingerprinting</i> |
| 7/17/25 | 3. Kaur, Prabhjot (NERS)
<i>Improving the probabilistic method of sequence reconstruction and developing a 3D Compton imaging system with CdZnTe</i> |
| 4/29/25 | 4. Muppala, Aditya Varma (ECE)
<i>New directions in millimeter-wave imaging: Systems, circuits and algorithms</i> |
| 4/24/25 | 5. Hougen, Conrad (ECE)
<i>Network models for learning uncertain and multimodal data</i> |
| 1/27/25 | 6. Salifu, Mariama (BME)
<i>Strategies for correcting respiration-induced B0 variations in oscillating steady-state functional MRI (OSS-fMRI)</i> |
| 8/30/24 | 7. Rice, Alexander (NERS)
<i>Random coded aperture design, simultaneous positron emission and single-photon emission imaging</i> |
| 8/27/24 | 8. Li, Mingchen (ECE)
<i>Toward effective neural architectures and algorithms for generalizable deep learning</i> |
| 7/23/24 | 9. Wang, Xiaokai (BME)
<i>Imaging and modeling gastric motor functions in rats and humans</i> |
| 4/12/24 | 10. Gupta, Dinank (BME)
<i>MRI guidance of transcranial histotripsy treatment</i> |
| 3/5/24 | 11. Liu, Bowen (ECE)
<i>Deep signal compression with feature representation learning</i> |
| 12/15/23 | 12. Zou, Jiaren (BME)
<i>Data-driven joint optimization of acquisition and reconstruction of quantitative MRI</i> |
| 9/1/23 | 13. Schwartz, Jonathan (MSE)
<i>Breaking dose limitations for high-resolution spectroscopy with fused multi-modal electron microscopy</i> |
| 4/10/23 | 14. Lu, Ning (BME)
<i>Transcranial MR-guided histotripsy (TcMRgHt) for brain tumor treatment</i> |
| 3/23/23 | 15. Sarwar, Tuba (ECE)
<i>On-chip UV/VIS optical spectrometer</i> |
| 2/20/23 | 16. Han, Kuan (EECS)
<i>From brain science to AI and back: Using deep neural networks to represent and decode brain activity linked to behavior</i> |
| 10/28/22 | * 17. Gilman, Kyle (EECS)
<i>Scalable algorithms using optimization on orthogonal matrix manifolds</i> |
| 8/4/22 | 18. Zhang, Junming (EECS)
<i>3D scene understanding with deep learning</i> |

- 6/8/22 19. Diaz, Julio (NERS)
Radiation transmission imaging applications for nuclear reactor systems
- 6/7/22 20. Srinivasan Ramanagopal, Manikandasriram (Robotics)
Thermal infrared for robot vision in the field
- 5/5/22 21. Whiteman, Andrew (Biostat)
Bayesian analysis of neuroimage data using Gaussian process priors
- 5/4/22 22. Sengupta, Aunnasha (ECE)
In silico tools for investigating the performance of breast cancer imaging technologies
- 12/15/21 * 23. Muthukrishnan, Harini (CSE)
Improving multi-GPU strong scaling through optimization of fine-grained transfers
- 11/5/21 24. Wittbrodt, Audelia (Appl Phys)
A Monte Carlo twist on the unscented Kalman filter for rare event prediction in non-linear systems
- 9/2/21 * 25. Nwadeyi, Valerie (NERS)
An MLEM approach to range verification for proton beam therapy using 3-D position sensitive CdZnTe
- 8/9/21 * 26. Huang, Zhengyu (EECS)
Novel imaging systems using nanophotonic devices
- 7/22/21 27. 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 28. Zhang, Yizhen (ECE)
Grounding language learning in vision for artificial intelligence and brain research
- 6/4/21 29. Steinberger, William (NERS)
A handheld dual particle imager for imaging and characterizing special nuclear material
- 12/22/20 * 30. Luo, Tianrui (BME)
MRI excitation pulse design and image reconstruction for accelerated neuroimaging
- 12/17/20 * 31. West, Brendan (CSE)
Streaming architectures for medical image reconstruction
- 6/25/20 32. Wei, Lise (Appl Phys)
Medical image analytics (radiomics) with machine/deep learning for outcome modeling in radiation oncology
- 5/28/20 * 33. Shah, Niral (NERS)
Adaptive imaging with a cylindrical, time-encoded imaging system
- 3/18/20 * 34. Shy, Dan (NERS)
Super-MeV Compton imaging and other projects using pixelated CdZnTe
- 1/13/20 35. Prasad, Arvind (EECS)
Learning, inference, and unmixing of weak, structured signals in noise
- 12/19/19 36. Cao, Amos (BME)
Methods for physiological artifact correction in oscillating steady state imaging
- 9/13/19 37. LeBlanc, Joel (ECE)
Optical system identification for passive electro-optical imaging
- 3/20/19 38. Williams, Bennett (NERS)
Applications of principal component analysis for position-sensitive semiconductor detectors
- 2/27/19 39. Goodman, David (NERS)
Passive characterization of unknown spaces using large-volume, pixelated CdZnTe

- 4/25/18 * 40. Chu, Jiyang (NERS)
Advanced imaging algorithms with pixelated CdZnTe detector array
- 3/12/18 41. Jintamethasawat, Rungroj (BME)
Limited angle ultrasound tomography of the compressed breast
- 1/10/18 42. Liang, Albert (BME)
Investigation of the performance of photon counting arrays Based on polycrystalline silicon thin-film transistors
- 1/5/18 * 43. Moore, Brian (ECE)
Robust algorithms for low-rank and sparse matrix models
- 12/1/17 44. Ropella, Kathleen (BME)
Methods for improving MRI-based conductivity mapping
- 8/2/17 45. Shahid, Nauman (EE/EPFL)
Scalable low-rank matrix and tensor decomposition on graphs
- 7/28/17 46. Cha, Kenny Heekon (BME)
Computer-aided image analysis and decision support system for bladder cancer
- 7/20/17 47. Li, Jie (ECE)
Place recognition and localization for multi-modality underwater navigation with vision and acoustic sensors
- 6/16/17 * 48. Lien, Miao-Bin (ECE)
Problems in scattering and imaging
- 5/4/17 49. Hamel, Michael (NERS)
A stochastic imaging technique for spatio-spectral characterization of special nuclear material
- 4/4/17 * 50. Yoon, Seongjin (NAME)
Electron beam X-ray computed tomography for multiphase flows and an experimental study of inter-channel mixing
- 3/30/17 * 51. Sampson, Richard (CSE)
Architectural support for medical imaging
- 3/22/17 52. Zhu, Yiyang (BME)
Assessment and control of a cavitation-enabled therapy for minimally invasive myocardial reduction
- 3/20/17 53. Zhao, Chumin (ECE)
High resolution active pixel sensor X-ray detectors for digital breast tomosynthesis
- 1/18/17 54. Weng, Xin (ME)
A simplified phase display system for 3D surface measurement and abnormal surface pattern detection
- 1/13/17 55. Bevill, Aaron (NERS)
Uncertainty quantification in emission quantitative imaging
- 1/12/17 56. Brown, Steven (NERS)
Time-encoded thermal neutron imaging using large-volume pixelated CdZnTe detectors
- 12/13/16 57. Rowland, David (Biophysics)
Improving the scope and quality of single-molecule data analysis
- 8/26/16 58. Cho, Hyun Jeong (ECE)
Autofocus and back-projection in synthetic aperture radar imaging
- 7/15/16 59. Polack, J. Kyle (NERS)
A maximum likelihood approach for localizing and characterizing special nuclear material with a dual particle imager

- 1/12/16 60. Chu, Alan (BME)
Simultaneous multislice functional magnetic resonance imaging
- 12/17/15 61. Prelee, Matt (ECE)
Manhattan cutset sampling and sensor networks
- 11/9/15 62. Chen, Yu-Hui (ECE)
Multimodal image fusion and its applications
- 5/14/15 63. Zhai, Yuanhao (ECE)
Perceptual image similarity metrics and applications
- 12/17/14 64. Watanabe, Takanori (ECE)
Scalable machine learning methods for massive biomedical data
- 7/3/14 65. Tsai, Grace (ECE)
On-line, incremental visual scene understanding for an indoor navigating robot
- 4/16/14 66. Joshi, Sonal (NERS)
Coded aperture imaging applied to pixelated CdZnTe detectors
- 1/9/14 67. Liu, Elson (ECE)
Immersion scatterometry for nanoscale grating topography extraction
- 12/11/13 68. Tsiligkaridis, Theodoros (ECE)
High dimensional separable representations for statistical estimation and controlled sensing
- 12/6/13 69. Jin, Curtis (ECE)
New methods and theory for increasing transmission of light through highly-scattering random media
- 5/17/13 70. Choi, Wongun (ECE)
Understanding complex human behaviour in images and videos
- 8/15/13 71. Park, Se Un (ECE)
Reconstruction, classification, and segmentation for computational microscopy
- 5/9/13 72. Shearer, Paul (Appl. Math.)
Separable inverse problems, blind deconvolution, and stray light correction for extreme ultra-violet solar images
- 5/7/13 73. Peng, Fei (IoE)
Optimization methods for volumetric modulated arc therapy and radiation therapy under uncertainty
- 3/28/13 74. Park, Jae-Young (ECE)
Compressed sensing in multi-signal environments
- 1/14/13 75. Liu, Tzu-Yu (Joyce) (EE)
Statistical learning for sample-limited high-dimensional problems with application to biomedical data
- 12/18/12 * 76. Jaworski, Jason (NERS)
Compton imaging algorithms for position-sensitive gamma-ray detectors in the presence of motion
- 4/10/12 77. Sricharan, Kumar (ECE)
Neighborhood graphs for estimation of density functionals
- 1/12/12 78. Xu, Li (Mech. Eng.)
High quality 3D shape reconstruction via digital refocusing and pupil apodization in multi-wavelength holographic interferometry
- 1/6/12 79. Hooi, Fong Ming (BME)
Optimized beamforming and limited angle tomography algorithms with 2D reconfigurable arrays

- 12/16/11 80. Haynes, Mark (ECE)
Full-wave nonlinear inverse scattering for acoustic and electromagnetic breast imaging
- 9/14/11 81. Wang, Weiyi (NERS)
Techniques and applications of Compton imaging for position-sensitive gamma-ray detectors
- 8/12/11 82. Lee, Gyemin (ECE)
Fusing partially-observed flow cytometry data
- 6/23/11 * 83. Wahl, Christopher G. (NERS)
Imaging, detection, and identification algorithms for position-sensitive gamma-ray detectors
- 4/20/11 84. Dasika, Ganesh (CSE)
Power-efficient application- and domain-specific processors
- 4/11/11 85. Huh, Sam Seoung (BME)
Surgical imaging probes with positron emitting radiotracers
- 1/12/11 86. Sarkar, Saradwata (BME)
Quantitative assessment of volume change in lesions using image registration
- 11/23/10 * 87. Musheinessh, Malakeh (ECE)
Model-based image reconstruction for THz imaging systems
- 11/10/10 * 88. Kim, Yoon-Chung Christie (BME)
Non-Cartesian parallel image reconstruction for functional MRI
- 7/7/10 89. Sinha, Sumedha P. (BME)
Breast cancer detection on automated 3D ultrasound with co-localized 3D X-ray
- 5/10/10 90. Lee, Benjamin C. (ECE)
Conditioning of and algorithms for image reconstruction from irregular frequency samples
- 5/20/10 91. Al-Salem, Faisal (ECE)
Blind super-resolution from multiple undersampled images using sampling diversity
- 1/8/10 92. Yee, Victoria (ECE)
Studies on the asymptotic behavior of parameters in optimal scalar quantization
- 2/20/09 93. Pandey, Kiran (BME)
Mitigation of motion artifacts in functional MRI: A combined acquisition, reconstruction and post processing approach
- 9/24/08 94. Zhang, Hui (Biostatistics)
Advances in modeling and inference of neuroimaging data
- 9/12/08 95. Peng, Jinzheng (ECE)
Polarimetric microwave radiometer calibration
- 9/10/08 96. Kowash, Ben (NERS)
A rotating modulation imager for the orphan source search problem
- 6/16/08 97. Rao, Arvind (Bioinformatics/ECE)
Prospective identification of long-range transcriptional enhancers via integrative genomics
- 5/2/08 98. Han, Li (BME)
Statistical performance evaluation, system modeling, distributed computation and signal pattern matching for a Compton medical imaging system
- 12/17/07 * 99. Grissom, Will (BME)
RF pulse design for parallel excitation in MRI
- 10/17/07 100. Dehmollaian, Mojtaba (ECE)
Hybrid EM models for purpose of detection and identification of visually obscured targets
- 10/3/07 101. Ulfarsson, Magnus (ECE)
Model based principal component analysis with application to fMRI

- 7/23/07 102. Rangarajan, Raghuram (ECE)
Resource constrained adaptive sensing
- 8/10/06 103. Shah, Siddarth (BME)
Deconvolution algorithms for fluorescence and electron microscopy
- 5/8/06 * 104. Blatt, Doron (ECE)
Performance evaluation and optimization for inference systems: model uncertainty, distributed implementation, and active sensing
- 5/2/06 * 105. Ting, Michael (ECE)
Signal processing for magnetic resonance field microscopy (MRFM)
- 8/29/05 106. Costa, José (ECE)
Random graphs for structure discovery in high-dimensional data
- 5/17/05 107. Steele, Derek (BME)
Three-dimensional, static displacement, stimulated echo, magnetic resonance elasticity imaging
- 3/31/05 108. Park, Sang-June (NERS)
A very high resolution small animal PET based on the Compton PET concept
- 2/4/05 109. Kreucher, Chris (ECE)
An information-based approach for sensor resource allocation
- 01/25/05 110. Shih, Meng-Fu (ECE)
Unicast internet tomography
- 1/11/05 111. Neemuchwala, Huzefa (BME)
Entropic graphs for image registration
- 6/15/04 112. Bartsch, Mark (ECE)
Automated singer identification in polyphonic music
- 4/26/04 113. Xi, Bowei (Stat)
Estimating internal link loss rates using active network tomography
- 3/5/04 114. Chakravorty, Suman (AERO)
Design and optimal control of multi-spacecraft interferometric imaging systems
- 12/3/03 115. Holt, Kevin (ECE)
Methods and design algorithms for predictive quantization of signals and images
- 07/30/03 116. Torres-Fernandez, Jose E. (ECE)
Construction of signal-dependent Cohen's class time-frequency representations using iterative blind deconvolution
- 04/25/03 117. Mills, Kurt (ECE)
Image plane holography
- 04/25/03 118. Wang, Yue (Biostatistics)
Statistical methods for biomarkers
- 10/18/02 119. Wang, Yao (BME)
Forward-viewing ring annular array in intravascular ultrasound imaging
- 07/24/02 120. Kragh, Thomas (ECE)
Tradeoffs and limitations in statistically based image reconstruction problems
- 08/12/02 121. Sharp, Greg (CSE)
Automatic and stable multiview 3D surface registration
- 06/13/02 122. Slyz, Marko (ECE)
Lossless image compression using combinations of simple components
- 01/23/02 123. Li, Jia (ECE)
Three dimensional shape modeling: Segmentation, reconstruction, and registration

- 07/23/01 124. Cheng, Corey (ECE)
Visualization, measurement, and interpolation of head-related transfer functions with applications in electro-acoustic music
- 01/19/01 125. Kim, Hyung Soo (ECE)
Adaptive target detection in radar imaging
- 01/04/01 126. Nickel, Robert (ECE)
Generalized scale transforms, theory and applications
- 12/18/00 127. Ghalib, Ali M. (Civ. Env. Eng.)
Laboratory and in-situ soil characterization by computer vision
- 08/29/00 128. Hua, Chia-ho (BME)
Compton imaging system development and performance assessment
- 05/24/00 129. Lin, Steve (CSE)
Photometric modeling of specular and diffuse appearance
- 05/19/00 * 130. Piramuthu, Robinson (ECE)
Robust fusion of MRI and ECT data, and acceleration of EM algorithm using proximal point approach
- 01/25/00 131. Kwak, Byung-Jae (ECE)
Nonlinear system identification with an application to hydraulic actuator friction dynamics
- 10/25/99 132. Park, Jiyoung (NERS)
Neutron scattering correction functions for neutron radiographic images
- 11/23/99 133. 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
- 07/14/99 134. Crowe, John R. (ECE)
Ultrasonic arterial imaging with an interluminal catheter array
- 05/14/99 135. Sterian, Andrew D. (ECE)
Model-based segmentation of time-frequency images for musical transcription
- 04/29/99 136. Hunter, David (Statistics)
Optimization transfer algorithms in statistics
- 04/19/99 137. Tashkandi, Esam Ahmed (Oral Health Sciences)
Accuracy of using spectral color transformation in the prediction of tooth colors
- 01/25/99 138. Wan, Hong (BME)
Thermal dose optimization for ultrasound tissue ablation
- 08/03/98 139. Moo, Peter W. (ECE)
Asymptotic analysis of lattice-based quantization
- 01/12/98 140. Lubinski, Mark A. (BME)
Speckle tracking techniques for ultrasound elasticity imaging
- 11/24/97 141. Krishnan, Sriram (ECE)
Adaptive and nonlinear ultrasound imaging
- 09/15/97 142. Bell, Amy E. (ECE)
1D and 2D phase retrieval by solving linear systems of equations and by using the wavelet transform
- 07/22/97 143. Haddadin, Osama S. (ECE)
Ultrasound inverse scattering for tomographic imaging and self-focusing arrays

- 05/14/97 144. Rajashri Rajaram Joshi (ECE)
Multiresolution fast algorithms for one-dimensional inverse scattering and linear least-squares estimation
- 04/03/97 145. Guevara, Rowena Cristina L. (ECE)
Modal distribution analysis and sum of sinusoids synthesis of piano tones
- 01/03/97 146. Ng, Chor-Yi (BME)
Preliminary studies on the feasibility of addition of vertex view to conventional brain SPECT imaging
- 10/28/96 147. Sharfer, Ilan (ECE)
Recursive algorithms for digital communications using the discrete wavelet transform
- 09/09/96 148. Ribas-Corbera, Jordi (ECE)
Optimizing the motion vector accuracies in block-based video coding
- 05/17/96 * 149. 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 * 150. Zhang, Yong (BME)
Improved SPECT radioactivity quantification using MRI side information
- 08/04/94 * 151. 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

- 4/16/26 152. Xu, Xingyu (CMU)
Fantastic diffusion models and where to apply them
- 11/17/25 153. Oudoumanessah, Geoffroy (INRIA / Université Grenoble Alpes)
Sequential and active learning for advancing MRI acquisition and anomaly detection in brain images
- 12/16/22 154. Guillaume, Daval-Frérôt (CEA Saclay)
Deep neural networks for MR image reconstruction and B0 inhomogeneity correction in non-Cartesian susceptibility weighted imaging at 3 Tesla
- 2/25/22 155. Yaman, Burhaneddin (Univ. of Minnesotat)
Self-supervised physics-guided deep learning for solving inverse problems in imaging
- 04/12/19 156. Chapdelaine, Camille (Universite Paris-Saclay)
Bayesian iterative reconstruction methods for 3D X-ray computed tomography
- 11/11/14 157. Ravishankar, Sai Prasad (ECE, Illinois)
Adaptive sparse representations and their applications
- 2/4/08 158. Fattahi, Shahin (ECE, Univ. of Western Ontario)
A unified investigation of noise-amplification in sensitivity encoded MRI

PH.D. DISSERTATION COMMITTEES - CURRENT

159. Yang, Jiayao (EECS)
Optimization methods for magnetic resonance imaging acquisition: RF pulse, gradients, and data sampling
160. Keen, Christopher (BME)
Quantitative MRI for rectal cancer

161. Hu, Wenxin (BME)
Toward brain-inspired vision: Building and evaluating models of visual perception
162. He, Yongli (Appl. Phys.)
Spatially- and velocity-selective tailored RF pulse design
163. Fung, Rex (BME)
High spatiotemporal resolution functional magnetic resonance imaging in the brainstem
164. Griesler, Tom (BME)
MRF for DCE
165. Manassa, Jason (MSE)
Optimal 3D chemical imaging with fused multi-modal tomography
166. Shi, Naichen (IOE)
Federated data analytics for the internet of things
167. Ritchie, Alexander (EECS)
Mixtures of nonlinear regressions, online supervised PCA, and instance dependent label noise

M.S. DISSERTATION COMMITTEES - PAST

- 4/21/20 168. 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*
- 06/30/98 169. Kumar Gopalakrishnan (ECE)
Backward-adaptive architectures for progressive image compression

GRADUATE STUDENT DIRECTED STUDY (MS STUDENT PROJECTS)

- 2026 Lee, Shao Ying (BME)
Scatter correction for At-211 SPECT
- 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 algorithms for dictionary learning

2016	Ji, Yifan (BME) BME 590 on accelerating CT reconstruction
2016	Shi, Junyan (BME) BME 590 on MRI field map estimation
2014-2016	Gonzales, Brian (EECS) CT image reconstruction
2012-2016	Kwon, Jean Young Song (EECS) Image registration
2011-2012	Mahta, Mousavi (EECS) MR image reconstruction
1/05	Paidi, Ajay (BME) X-ray CT cone-beam weighted image reconstruction methods
9/03	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

25F	Hu, Justin Multi-scale energy models for image reconstruction
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25F-26W	Mendoza, Monica SPECT medical image segmentation with deep learning (PURE-ECE)
25F	Shi, Wen Transient-enhanced implicit neural representations for sparse-spoke 3D cardiac MRI reconstruction and temporal interpolation (EECS 443)
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, nctx to 12/31/26

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, nctx to 6/30/26

Principal Investigator: Yuni Dewaraja

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

NIH R01 EB022075

7/1/20-4/30/26 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: Liyue Shen

Title: *Collaborative Research: III: Diffusion models for scientific imaging: Advancing modeling, efficiency, and robustness*

NSF 2620038

9/1/26-8/31/29

Principal Investigator: Qing Qu

Title: *Generative models for data assimilation: From mathematical foundations to scientific applications*

DoE 293968

9/1/26-8/31/29

Principal Investigator: J F Nielsen

Title: *A vendor-neutral multi-echo fMRI framework for robust, reproducible mapping of subcortical nuclei*

NIH R01

12/1/26-11/30/31

Principal Investigator: Navid Seraji-Bozorgzad

Title: *Quantitative MRI profile of white matter disease in ADRD*

NIH R01 NS 150219

7/1/26-6/30/31

Principal Investigator: Yun Jiang

Title: *3D high resolution magnetic resonance fingerprinting for prostate cancer*

NIH R37 CA263583

8/1/27-7/31/29

Principal Investigator: Luis Hernandez-Garcia

Title: *MR imaging the velocity spectrum in the human brain*

NIH R21 EB038420

7/1/26 403,259 total

Improved flow imaging

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. Graitmann, S. Y. Chun, J. A. Fessler, and S. P. Levine, “Electrocorticogram as a brain computer interface signal source,” in *Towards Brain-Computer Interfacing*, G. Dornhege, del R. Millán, T. Hinterberger, D. McFarland, and K.-R. Mueller, Eds., Cambridge: MIT Press, 2007, pp. 129–46.
- [1] J. A. Fessler, “Statistical image reconstruction methods for transmission tomography,” in *Handbook of Medical Imaging, Volume 2. Medical Image Processing and Analysis*, M. Sonka and J. M. Fitzpatrick, Eds., Bellingham: SPIE, 2000, pp. 1–70.

Refereed Journal Papers

- [260] R. A. Lobos, J.-S. Cavazos, R. R. Nadakuditi, and J. A. Fessler, “Smooth optimization using global and local low-rank regularizers,” *SIAM J. Imaging Sci.*, vol. 19, no. 2, 839–78, 2026.
- [259] S. Gautam, A. Li, N. Seiberlich, J. A. Fessler, and S. Ravishankar, “Scan-adaptive MRI undersampling using neighbor-based optimization (SUNO),” *IEEE Trans. Computational Imaging*, vol. 12, 601–13, 2026.
- [258] R. A. Lobos, X. Wang, R. T. L. Fung, Y. He, D. Frey, D. Gupta, Z. Liu, J. A. Fessler, and D. C. Noll, “Spatiotemporal maps for dynamic MRI reconstruction,” *IEEE Trans. Computational Imaging*, vol. 12, 416–30, 2026.
- [257] T. Hong, U. Villa, and J. A. Fessler, “A convergent generalized Krylov subspace method for compressed sensing MRI reconstruction with gradient-driven denoisers,” *IEEE Trans. Computational Imaging*, vol. 12, 378–90, 2026.
- [256] T. Hong, Z. Xu, J. Hu, and J. A. Fessler, “Using randomized Nyström preconditioners to accelerate variational image reconstruction,” *IEEE Trans. Computational Imaging*, vol. 11, 1630–43, 2025.
- [255] T. Hong, Z. Xu, S. Y. Chun, L. Hernandez-Garcia, and J. A. Fessler, “Convergent complex quasi-Newton proximal method for gradient-driven denoisers in compressed sensing MRI reconstruction,” *IEEE Trans. Computational Imaging*, vol. 11, 1534–47, 2025.
- [254] K. Gilman, D. Hong, J. A. Fessler, and L. Balzano, “Streaming heteroscedastic probabilistic PCA with missing data,” *Trans. Mach. Learning Res.*, no. 4618, 1–25, 2025.
- [253] A. Murguia, S. D. Swanson, U. Scheven, A. Jacobson, J.-F. Nielsen, J. A. Fessler, and N. Seraji-Bozorgzad, “Impact of tissue sample preparation methods on myelin-sensitive quantitative MR imaging,” *Mag. Res. Med.*, vol. 94, no. 5, 2071–85, Nov. 2025.

- [252] J. Yang, J.-F. Nielsen, J. A. Fessler, and Y. Jiang, “Multidimensional RF pulse design using auto-differentiable spin-domain optimization and its application to reduced field-of-view imaging,” *Mag. Res. Med.*, vol. 94, no. 5, 1963–81, Nov. 2025.
- [251] J. Hu, B. Song, J. A. Fessler, and L. Shen, “Test-time adaptation improves inverse problem solving with patch-based diffusion models,” *IEEE Trans. Computational Imaging*, vol. 11, 980–91, Jul. 2025.
- [250] X. Xu, M. Klasky, M. T. McCann, J. Hu, and J. A. Fessler, “Swap-Net: A memory-efficient 2.5D network for sparse-view 3D cone beam CT reconstruction to ICF applications,” *IEEE Trans. Computational Imaging*, vol. 11, 872–87, 2025.
- [249] Z. Li, Y. Jia, X. Xu, J. Hu, J. A. Fessler, and Y. K. Dewaraja, “Shorter SPECT scans using self-supervised coordinate learning to synthesize skipped projection views,” *Eur. J. Nuc. Med.*, vol. 12, no. 47, 1–16, May 2025.
- [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.
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