PERSONAL

Residence Address:
1415 Morton Ave.
Ann Arbor, MI 48104
(734) 995-5399

Office Address:
EECS Dept., 1301 Beal Ave.
University of Michigan
Ann Arbor, MI 48109-2122
(734) 763-1434

email: fessler@umich.edu
WWW: http://www.eecs.umich.edu/∼fessler/

EDUCATION

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

ACADEMIC APPOINTMENTS (all at the University of Michigan)

07/06-08/08	Assoc. Chair, ECE Division, Dept. of Electrical Engineering and Computer Science
09/04-present	Professor, Dept. of Electrical Engineering and Computer Science, Dept. of Biomedical Engineering, Dept. of Radiology
09/98-08/04	Associate Professor, 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 Research Scientist, Division 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 Advisor: Prof. Albert Macovski, Information Systems Lab, Stanford University

AFFILIATIONS

2006-present	Fellow, IEEE
2002-present	IEEE Nuclear and Plasma Sciences Society
2003	Intl. Soc. Magnetic Resonance in Medicine
2002-present	IEEE Engineering in Medicine & Biology Society
2001	SPIE
1991-2003	American Statistical Association
1990-present	Society for Industrial and Applied Mathematics
1983-present	IEEE & IEEE Signal Processing Society

HONORS

2007	University of Michigan Faculty Recognition Award
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.
2006	IEEE Fellow, for contributions to theory and practice of image reconstruction
2005	UM College of Engineering Education Excellence Award
2003	EECS Department Outstanding Achievement Award
2002-5	AIMBE Fellow (American Institute for Medical and Biological Engineering)
2000	Eta Kappa Nu "EECS Professor of the Year" award
2000	Henry Russel Award, Univ. of Michigan (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	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, Information Processing in Medical Imaging Conference. Best presentation by young investigator
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 Outstanding Senior Engineer Award
1982	Purdue President's Honors Award and Scholarship Eta Kappa Nu, Phi Kappa Phi, Phi Eta Sigma

UNDERGRADUATE RESEARCH

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

SOFTWARE

VSPLINE	A library for non-parametric smoothing with vector splines. Source code in C available through NETLIB.
ASPIRE	A sparse iterative reconstruction library. Compiled program available on web. Over 170 registered users internationally.
NUFFT	Matlab toolbox for nonuniform fast Fourier transform.
Tomo Toolbox	Matlab toolbox for tomographic image reconstruction.

PATENTS / DISCLOSURES

2008-11	(Disclosure) Yong Long, J A Fessler, James M Balter Fast and accurate three-dimensional forward and back-projection methods
2008-1	(Disclosure) J A Fessler, Somesh Srivastava, Jean-Baptiste Thibault Motion artifact reduction in iterative reconstruction for X-ray CT imaging
2008-08-28	(Filed/pending) Jean-Baptiste Thibault, Charles A Bouman, J A Fessler, Ken D Sauer Method and system for image reconstruction
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
2006-2	(Disclosure) Jeffrey 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
2005	(Filed/pending) Jeffrey A. Fessler and Jiang Hsieh Noise-adapting edge-preserving regularization for X-ray reconstruction
2004-6-22	U.S. Patent No. 6,754,298. Jeffrey A. Fessler Method for statistically reconstructing images from a plurality of transmission measurements having energy diversity and image reconstructor apparatus utilizing the method.
2003-1-14	U.S. Patent No. 6,507,633. Idris Elbakri, Jeffrey A. Fessler Method for statistically reconstructing a polyenergetic X-ray computed tomography image and image reconstructor apparatus utilizing the method.

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 front end 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.

SERVICE

EDITORIAL POSITIONS

3/1997-present	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

7/2006-8/2008	Assoc. Chair, ECE Division of EECS
1/2008-4/2008	Co-Chair, Joint EECS/CPAT Search Committee
9/2004-8/2006	Chair, CoE Curriculum 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
9/2002-5/2004	CoE Curriculum Committee, ECE rep.
3/2001-5/2001	EE/Systems organization committee
9/2000-5/2001	Chair, EE Curriculum Committee
9/2000-5/2001	CoE Curriculum Committee, EECS rep.
11/2000-5/2001	CE UG Degree Program Committee
9/1999-5/2000	EE Curriculum Committee
8/1997-5/2000	Biomedical Engineering Advising (Medical Imaging Track)
2/1996-8/1999	EECS Systems Graduate Admissions
2/1996-8/1999	EECS Systems Graduate Education Committee
1993-8/2000	Biomedical Engineering Graduate Education Committee
1986-1987	Student Member - Stanford Committee on Graduate Studies
1985-1986	Graduate Senator - Associated Students of Stanford University
1984-1985	Student Representative - Purdue EE Undergraduate Curriculum Committee

SCIENTIFIC SERVICE

	Professional Society
2009	Chair and Treasurer, Steering Committee, IEEE Trans. Medical Imaging
2007-present	Technical Committee on Medical Imaging and Image Processing (MIIP), 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
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	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
2001-3	Fully 3D Image Reconstruction Meeting, Scientific Committee
2001,3,5	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-present	IEEE Nuclear Science Symp. and Med. Imag. Conf. (NSS/MIC), program committee

Conference Reviews

2009	ISMRM workshop on data sampling and image reconstruction
2008	IEEE EMBS conference
2004-6	IEEE international conf. on acoustics, speech, and signal processing (ICASSP)
1995,7,2000-6	IEEE international conference on image processing (ICIP)
1995	IEEE international symposium on information theory

Grant Reviews

2008-	Scientific Advisory Board member for UCSF NIH P41: "Research Resource for MRI of Neurodegenerative Diseases"
2008-3	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
05/16/03	US/Israel Binational Science Foundation proposal review
03/25/02	NSF Panel Review (SBIR) (8 proposals), biomedical engineering program
06/28/01	NIH/NCI SBIR study section (6 proposals)
03/03/01	NSF proposal review, applied mathematics program
06/26/00	NIH Study Section, reviewer for shared instrumentation proposals
04/22/98	DOE SBIR, proposal review
11/10/97	NIH Study Section, reviewer for shared instrumentation proposals
1996-11-22	NIH/NCI study section, k01 proposal review
1993	National Science Foundation, proposal review

Book Reviews

11/2008	Review of Cambridge book proposal on statistics in bioimaging
11/2008	Review of SIAM book proposal on image registration
1/2008	Review of Springer book proposal on MR
04/27/00	Wiley textbook review: Signals and Systems, by Simon Haykin and Barry Van Veen
08/04/99	Examiner of dissertation of Sakari Alenius for Department of Information Technology in Tampere Univ. of Technology, Finland
12/1998	Wiley Press, textbook review (Johnson and Wise)
7/1998	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.)

2009	Computerized Medical Imaging and Graphics
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
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

PLENARY TALKS

2008	Model-based image reconstruction in MRI Huangguoshu International Interdisciplinary Conference on Biomedical Mathematics, Huangguoshu, China
2008	Signal processing in medical image reconstruction European Signal Processing Conference (EUSIPCO), Lausanne, Switzerland
2008	Mathematical challenges in magnetic resonance imaging (MRI) SIAM Conference on Imaging Science
1999	Fast converging iterative algorithms for PET The VIII symposium on the medical applications of cyclotrons, Turku, Finland

SHORT COURSES

05/14/08	*Iterative methods for image reconstruction* Tutorial course at ISBI in Paris.
05/4/08	*Tradeoffs and complexities in new reconstruction methods* Imaging strategies course / panel discussion at ISMRM Attendance ≈ 150
05/11/07	*Statistical methods for image reconstruction* Short course at JHU for approximately 30 attendees.
04/06/06	*Iterative methods for image reconstruction* Tutorial course at ISBI. Enrollment: 52
11/19/04	*Statistical methods for image reconstruction* Short course at IEEE Nuclear Science Symposium and Medical Imaging Conference in Rome. Enrollment: 80
10/20/03	*Magnetic resonance imaging* One component of a short course on *Fundamentals of Medical Imaging* presented at IEEE Nuclear Science Symp. and Medical Imaging Conf. in Portland, OR.
11/12/02	*Statistical methods for image reconstruction* Short course presented at IEEE Nuclear Science Symposium and Medical Imaging Conference in Norfolk, VA. Enrollment: 42.
6/17-20/02	*Statistical methods for image reconstruction* Lectures presented at 5th IEEE EMBS International Summer School on Biomedical Imaging, Berder Island, France. Enrollment: 51.
11/6/01	*Statistical methods for image reconstruction* Short course presented at IEEE Nuclear Science Symposium and Medical Imaging Conference in San Diego, CA. Enrollment: 52.
11/10/98	*Statistical methods for image reconstruction and imaging system design* Organized and presented short course at IEEE Nuclear Science Symposium and Medical Imaging Conference in Toronto, Canada. Enrollment: 71.
11/12/97	*Magnetic resonance imaging* One component of a short course on *Fundamentals of Medical Imaging* presented at IEEE Nuclear Science Symp. and Medical Imaging Conf. in Albuquerque, NM.

EXTERNAL SEMINARS

03/12/09	Northeastern University, EE Department Motion-compensated image reconstruction
12/02/08	Illinois Institute of Technology, ECE Department Motion compensation in model-based image reconstruction
11/13/08	Ewha University, Seoul, Korea, EE Department Iterative methods for image reconstruction
11/11/08	Beijing University, School of Mathematical Sciences Motion compensation in model-based image reconstruction
09/18/08	University of Illinos, Urbana, BME Department Model-based image reconstruction with motion-compensation
10/11/07	University of Wisconsin, Milwaukee, Physics Department Iterative methods for image formation in MRI
10/10/07	GE Health Care Technologies, Milwaukee, WI Iterative image reconstruction for X-ray CT
05/10/07	Johns Hopkins University, Radiology Department Motion-corrected PET image reconstruction from respiratory gated data
12/14/06	University of Washington Department of Radiology Iterative reconstruction for MR imaging
10/04/06	GE Health Care Technologies, Milwaukee, WI Iterative reconstruction for X-ray CT imaging
05/25/06	General Electric Global Research Center, Schenectady, NY Iterative image reconstruction methods in MRI
03/16/06	ECE Department at Michigan State University, Distinguished Speaker Seminar Series Image reconstruction for magnetic resonance imaging: to FFT or not?
03/09/06	University of Chicago, Committee on Medical Physics Seminar Series Iterative image reconstruction methods in MRI
01/13/06	Martinos Center for Biomedical Imaging, Mass. Gen. Hosp. MR image reconstruction using iterative methods
05/03/05	Life Sciences Division, Lawrence Berkeley National Laboratory Fast iterative image reconstruction methods for MRI
04/14/04	Univ. of Virginia Image reconstruction in MRI using iterative methods Walter N. Munster Invited Lecture Series on Image Analysis
11/13/03	Stanford University Iterative methods for image reconstruction in MRI
03/06/03	General Electric Medical Systems, Milwaukee, WI Statistical X-ray CT image reconstruction
06/21/02	Nuklearmedizinische Klinik der Technischen Universitat Munchen Maximum-likelihood tomographic image reconstruction for dual-energy X-ray CT
06/13/01	General Electric Medical Systems, Milwaukee, WI Statistical methods for X-ray CT image reconstruction
12/16/00	Hong Kong University, Workshop on Mathematical Methods in Image Processing Parallelizable algorithms for image recovery problems
01/07/00	General Electric Corporate Research and Development, Schenectady, NY Statistical methods for image reconstruction

05/26/99	Tampere University of Technology, Finland Iterative reconstruction methods in emission tomography
04/20/99	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
08/24/96	University of Arizona Department of Radiology Noise and spatial resolution properties of image reconstruction methods
02/07/96	University of Washington Department of Radiology Conjugate gradient methods for image reconstruction
08/08/95	Nuklearmedizinische Klinik der Technischen Universitat Munchen Statistical methods for image reconstruction
06/17/94	Washington University, Midwest Workshop on Iterative Image Reconstruction Sequential iterative algorithms for image reconstruction
12/16/93	Brookhaven National Labs Penalized-likelihood image reconstruction methods
09/11/92	University of Minnesota, Midwest Workshop on Iterative Image Reconstruction Least squares: algebraic or statistical?
05/03/91	University of Chicago, Midwest Workshop on Iterative Image Reconstruction Gibbs-penalized reconstruction with imperfect boundary information
12/05/91	Mathematical Sciences Research Inst., Berkeley, CA Complete-data space choices for PET reconstruction

SEMINARS AT UM

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 Math 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
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	Lecturer for Positron Emission Tomography course in Nuclear Medicine
04/09/92	UM Biostatistics Department Statistical aspects of image reconstruction in positron-emission tomography (PET)
1992	Lecturer for Nuclear Medicine Course for basic scientists

COURSES - UNIVERSITY OF MICHIGAN

Year, Term	Number, Title
2007, Fall	EECS 516, Medical Imaging Systems
2006, Fall	EECS 755, Adv. Topics Signal Proc: Image Reconstruction Algorithms
2006, Win.	EECS 206, Signals and Systems I, Section 1
2005, Fall	EECS 516, Medical Imaging Systems
2005, Win.	EECS 556, Image Processing
2004, Fall	EECS 600, Function-space methods
2004, Win.	EECS 451, Digital Signal Processing and Analysis
2003, Fall	EECS 755, Adv. Topics Signal Proc: Advanced Topics in Image Formation
2003, Win.	EECS 206, Signals and Systems I, Sections 1 & 2
2002, Fall	EECS 206, Signals and Systems I (co-taught S1)
2002, Fall	EECS 206, Signals and Systems I (co-taught S2)
2001, Win.	EECS 556, Image Processing
2000, Fall	EECS 600, Function-space methods
2000, Win.	EECS 556, Image Processing
1999, Fall	EECS 316, Signals and Systems
1999, Win.	EECS 316, Signals and Systems
1998, Fall	EECS 451, Digital Signal Processing and Analysis
1998, Win.	EECS 451, Digital Signal Processing and Analysis
1997, Fall	EECS 516, Medical Imaging Systems
1997, Spr.	EECS 401, Probabilistic Methods in Engineering
1996, Fall	EECS 516, Medical Imaging Systems
1996, Win.	EECS 401, Probabilistic Methods in Engineering
1995, Fall	EECS 501, Probability and Random Processes
1994, Spr.	EECS 401, Probabilistic Methods in Engineering

PH.D. DISSERTATIONS CHAIRED

08/22/08 Shi, Hugo (EECS)
Regularization design for tomographic systems for uniform and isotropic spatial resolution

05/29/08 Ruan, Dan (EECS)
Image guided respiratory motion analysis: time series and image registration

04/25/08 Srivastava, Somesh (EECS)
Accelerated statistical image reconstruction algorithms and simplified cost functions for X-ray computed tomography

06/25/07 Zhang, Yingying (EECS)
Noise properties of regularized image reconstruction in X-ray computed tomography

05/14/07 Zeng, Rongpeng (EECS)
Estimating respiratory motion from CT images via deformable models and priors

01/27/06 Jacobson, Matthew (EECS)
Approaches to motion-corrected PET image reconstruction from respiratory gated projection data

08/29/05 Yendiki, Anastasia (EECS)
Analysis of signal detectability in statistically reconstructed tomographic images

08/24/04 Ahn, Sangtae (EECS)
Convergent algorithms for statistical image reconstruction in emission tomography

12/15/03 Kim, Jeongtae (EECS)
Intensity based image registration using robust similarity measure and constrained optimization: applications for radiation therapy

06/13/03 Elbakri, Idris A (EECS)
Statistical reconstruction algorithms for polyenergetic X-ray computed tomography

04/18/03 Sotthivirat, Saowapak (EECS)
Statistical image recovery techniques for optical imaging systems

09/18/02 Stayman, Joseph Webster (EECS)
Spatial resolution in penalized-likelihood image reconstruction

04/19/00 Yu, Feng (Dan) (EECS)
Statistical methods for transmission image reconstruction with nonlocal edge-preserving regularization

11/17/99 Yavuz, Mehmet (EECS)
Statistical tomographic image reconstruction methods for randoms-precorrected PET measurements

07/26/99 Erdoğan, Hakan (EECS)
Statistical image reconstruction algorithms using paraboloidal surrogates for PET transmission scans

PH.D. DISSERTATIONS CO-CHAIRED

09/05/08 ***** Joshi, Aniket (BME) (with R. Koeppe)
Improved quantitative methods for multiple neuropharmacological non-invasive brain PET studies

08/21/08 ***** Bhagalia, Roshni (EECS) (with B. Kim)
Analysis and strategies to enhance intensity-based image registration

05/22/08	Bashan, Eran (EECS) (with A. Hero) *Efficient resource allocation schemes*
04/24/08	Way, Ted (BME) (with H. Chang) *Computer-aided diagnosis of pulmonary nodules in thoracic computed tomography*
04/23/08	***** Yeo, Teng Beck (Desmond) (EECS) (with B. Kim) *Advances in concurrent motion and field-inhomogeneity correction in functional MRI*
10/04/07	Noh, Joonki (EECS) (with V. Solo) *True spatio-temporal detection and estimation for functional magnetic resonance imaging*
10/01/07	***** Yip, Chun-yu (EECS) (with D. Noll) *RF pulse designs for signal recovery in T2*-weighted functional magnetic resonance imaging*
01/18/07	***** Narayanan, Ramkrishnan (BME) (with C. Meyer) *Diffeomorphic transformations for automatic multimodality image registration*
08/11/06	***** Lee, Sangwoo (EECS) (with D. Noll) *Iterative reconstruction methods for rosette trajectories in functional MRI*
04/30/04	Krishnan, Sumati (BME) (with T. Chenevert) *K-space acquisition method for dynamic contrast-enhanced MRI: Application to breast tumors*
08/25/03	***** Sutton, Brad (BME) (with D. Noll) *Physics-based reconstruction of magnetic resonance images*
05/28/03	Park, Hyunjin (BME) (with C. Meyer) *Adaptive registration and atlas based segmentation*
05/21/03	Sukovic, Predrag (BME) (with N. Clinthorne) *Design of a dual modality PET/cone beam CT scanner - A feasibility study*
02/07/01	Ghanei, Amir (EECS) (with H. Soltanian-Zadeh) *A knowledge-based deformable surface model for analysis of medical images*
10/1996	***** Titus, Steven Robert (EECS) (with A. Hero) *Improved penalized likelihood reconstruction of anatomically correlated emission data*

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 CHAIR - CURRENT

Chun, Se Young (EECS)
Joint image reconstruction and nonrigid image registration with motion invertibility prior
Funai, Amanda (EECS)
MR imaging
Huh, Wonseok (EECS)
MRI
Khalsa, Kim (BME)
Dynamic MRI
Lingenfelter, Dan (EECS)
Image reconstruction for homeland security
Long, Yong (EECS)
Image reconstruction for radiation oncology
Makatos, Antonis (EECS)
X-ray CT and MR image reconstruction
Valenzuela, John (Appl. Phys.)
Imaging through atmospheric turbulence

PH.D. DISSERTATION CO-CHAIR - CURRENT

Park, Jae Young (EECS) (with M. Wakin)
Compressive sensing
Dupuis, Catherine (Math/AIM) (with S. Esedoḡlu)
Image processing with PDEs
Olafsson, Valur (EECS) (with D. Noll)
Fast reconstruction of dynamic R2 and field maps in functional MRI*
Maleh, Ray (Math/AIM) (with A. Gilbert)
Image processing with PDEs
Yoon, Daehyun (EECS) (with D. Noll)
MR pulse methods

PH.D. DISSERTATION COMMITTEES - PAST

9/24/08 Zhang, Hui (Biostatistics)
Advances in modeling and inference of neuroimaging data
9/12/08 Peng, Jinzheng (EECS)
Polarimetric microwave radiometer calibration
9/10/08 Kowash, Ben (NERS)
A rotating modulation imager for the orphan source search problem
6/16/08 Rao, Arvind (Bioinformatics/EECS)
Prospective identification of long-range transcriptional enhancers via integrative genomics
5/2/08 Han, Li (BME)
Statistical performance evaluation, system modeling, distributed computation and signal pattern matching for a Compton medical imaging system

12/17/07	Grissom, Will (BME) *RF pulse design for parallel excitation in MRI*
10/17/07	Dehmollaian, Mojtaba (EECS) *Hybrid EM models for purpose of detection and identification of visually obscured targets*
10/3/07	Ulfarsson, Magnus (EECS) *Model based principal component analysis with application to fMRI*
7/23/07	Rangarajan, Raghuram (EECS) *Resource constrained adaptive sensing*
8/10/06	Shah, Siddarth (BME) *Deconvolution algorithms for fluorescence and electron microscopy*
5/8/06	Blatt, Doron (EECS) *Performance evaluation and optimization for inference systems: model uncertainty, distributed implementation, and active sensing*
5/2/06	Ting, Michael (EECS) *Signal processing for magnetic resonance field microscopy (MRFM)*
8/29/05	Costa, José (EECS) *Random graphs for structure discovery in high-dimensional data*
5/17/05	Steele, Derek (BME) *Three-dimensional, static displacement, stimulated echo, magnetic resonance elasticity imaging*
3/31/05	Park, Sang-June (NERS) *A very high resolution small animal PET based on the Compton PET concept*
2/4/05	Kreucher, Chris (EECS) *An information-based approach for sensor resource allocation*
01/25/05	Shih, Meng-Fu (EECS) *Unicast internet tomography*
1/11/05	Neemuchwala, Huzefa (BME) *Entropic graphs for image registration*
6/15/04	Bartsch, Mark (EECS) *Automated singer identification in polyphonic music*
4/26/04	Xi, Bowei (Stat) *Estimating internal link loss rates using active network tomography*
3/5/04	Chakravorty, Suman (AERO) *Design and optimal control of multi-spacecraft interferometric imaging systems*
12/3/03	Holt, Kevin (EECS) *Methods and design algorithms for predictive quantization of signals and images*
07/30/03	Torres-Fernandez, Jose E. (EECS) *Construction of signal-dependent Cohen's class time-frequency representations using iterative blind deconvolution*
04/25/03	Mills, Kurt (EECS) *Image plane holography*
04/25/03	Wang, Yue (Biostatistics) *Statistical methods for biomarkers*
10/18/02	Wang, Yao (BME) *Forward-viewing ring annular array in intravascular ultrasound imaging*

07/24/02	Kragh, Thomas (EECS) *Tradeoffs and limitations in statistically based image reconstruction problems*
08/12/02	Sharp, Greg (EECS-CSE) *Automatic and stable multiview 3D surface registration*
06/13/02	Slyz, Marko (EECS) *Lossless image compression using combinations of simple components*
01/23/02	Li, Jia (EECS) *Three dimensional shape modeling: Segmentation, reconstruction, and registration*
07/23/01	Cheng, Corey (EECS) *Visualization, measurement, and interpolation of head-related transfer functions with applications in electro-acoustic music*
01/19/01	Kim, Hyung Soo (EECS) *Adaptive target detection in radar imaging*
01/04/01	Nickel, Robert (EECS) *Generalized scale transforms, theory and applications*
12/18/00	Ghalib, Ali M. (Civ. Env. Eng.) *Laboratory and in-situ soil characterization by computer vision*
08/29/00	Hua, Chia-ho (BME) *Compton imaging system development and performance assessment*
05/24/00	Lin, Steve (EECS-CSE) *Photometric modeling of specular and diffuse appearance*
05/19/00	Piramuthu, Robinson (EECS) *Robust fusion of MRI and ECT data, and acceleration of EM algorithm using proximal point approach*
01/25/00	Kwak, Byung-Jae (EECS) *Nonlinear system identification with an application to hydraulic actuator friction dynamics*
10/25/99	Park, Jiyoung (NERS) *Neutron scattering correction functions for neutron radiographic images*
11/23/99	Salinger, Jeremy A. (EECS) *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	Crowe, John R. (EECS) *Ultrasonic arterial imaging with an interluminal catheter array*
05/14/99	Sterian, Andrew D. (EECS) *Model-based segmentation of time-frequency images for musical transcription*
04/29/99	Hunter, David (Statistics) *Optimization transfer algorithms in statistics*
04/19/99	Tashkandi, Esam Ahmed (Oral Health Sciences) *Accuracy of using spectral color transformation in the prediction of tooth colors*
01/25/99	Wan, Hong (BME) *Thermal dose optimization for ultrasound tissue ablation*
08/03/98	Moo, Peter W. (EECS) *Asymptotic analysis of lattice-based quantization*
01/12/98	Lubinski, Mark A. (BME) *Speckle tracking techniques for ultrasound elasticity imaging*

11/24/97 Krishnan, Sriram (EECS)
Adaptive and nonlinear ultrasound imaging

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

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

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

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

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

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

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

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

08/04/94 Usman, Mohammed (EECS)
Biased and unbiased Cramer-Rao bounds: computational issues and applications

PH.D. DISSERTATION COMMITTEES - CURRENT

Cho, Hyun Jeong (EECS)
Multichannel SAR autofocus

Hooi, Fong Ming (BME)
Optimized beamforming and limited angle tomography algorithms with 2D reconfigurable arrays

Sarkar, Saradwata (BME)
Quantitative assessment of volume change in lesions using image registration

Maleh, Ray (Applied Math.)
Sparse-gradient image recovery from a partial Fourier measurements

Huh, Sam Seoung (BME)
Surgical imaging probes with positron emitting radiotracers

Lee, Benjamin C. (EECS)
Conditioning of and algorithms for image reconstruction from irregular frequency samples

Pandey, Kiran (BME)
Motion in MRI

Yee, Victoria (EECS)
Performance analysis of generalized transform coders

M.S. DISSERTATION COMMITTEES - PAST

06/30/98 Kumar Gopalakrishnan (EECS)
Backward-adaptive architectures for progressive image compression

GRADUATE STUDENT DIRECTED STUDY

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

UNDERGRADUATE RESEARCH MENTORING

2005 winter Caparanis, Nicole; Laskowski, 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 Undergraduate 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

GRANT SUPPORT - CURRENT

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

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

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: Jeffrey A. Fessler
Title: *UM subcontract: Quantitative PET/CT oncology imaging*
Univ. of Washington 05-5341
9/1/06-8/31/10

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: Doug Noll
Title: *MRI parallel excitation for neuroimaging applications*
NIH NS R01 NS 058576
01/01/08-12/31/12

Principal Investigator: Zhong He
Title: *Development of real-time imaging and isotope detection algorithms for 3-D position-sensitive semi-conductor gamma-ray imaging spectrometers and sensor networks*
DNDO 2008-DN-077-ARI007-02
9/1/07-12/31/09

Principal Investigator: Heang-Ping Chan
Title: *Digital tomosynthesis mammography: Computer-aided analysis of masses*
NIH 1 R21 CA120234-01
9/1/06-8/31/09

Principal Investigator: Benedick Fraass
Title: *Optimization of high dose conformal therapy*
NIH 2 P01 CA59827-11A1
7/1/06-6/30/11

Principal Investigator: Doug Noll
Title: *Elimination of head movement artifact in fMRI*
NIH 1 R01 EB002683
09/01/03-7/31/08, NCX to 7/31/09

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

GRANT SUPPORT - PENDING

Principal Investigator: Jeffrey A. Fessler
Title: *Advanced image reconstruction methods for lower-dose X-ray CT pediatric imaging*
Hartwell Foundation
5/1/09-4/30/12

GRANT SUPPORT - PAST

Principal Investigator: Jeffrey A. Fessler
Title: *2007 International Symposium on Biomedical Imaging (ISBI)*
NIH R13 EB007469-01
4/12/07-4/15/07

Principal Investigator: Jeffrey A. Fessler
Title: *X-ray CT image reconstruction using statistical methods (year five)*
GE Medical Systems N004789
9/1/06-8/31/07, NCX to 2008-6-1

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, NCX to 7/05/07

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, NCX 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, NCX to 7/31/06

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, NCX 6/30/08

Principal Investigator: Charles R. Meyer; Project 4 director: J. A. Fessler
Title: *Automatic 3D registration for enhanced cancer management / Project 4*
NIH/NCI 1P01 CA87634-01A3
04/01/02-03/31/07, NCX: 6/30/08

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, NCX to 7/06

Principal Investigator: Jeffrey A. Fessler
Title: *REU: Regularization methods for tomographic image reconstruction*
NSF BES-9982349 AMD 02
07/01/02-6/30/02

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: 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, NCX-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, NCX-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

BOOK CHAPTER

2007 "Electrocorticogram as a brain computer interface signal source"
J E Huggins, B Graimann, S Y Chun, J A Fessler, S P Levine. In *Towards Brain-Computer Interfacing*, G Dornhege, J R Millen, T Hinterberger and D McFarland, K-R Mueller, Eds. MIT Press, Cambridge, p. 129-46.

2000 "Statistical Image Reconstruction Methods for Transmission Tomography,"
J. A. Fessler. Chapter 1, pp. 1-70, in *Medical Image Processing and Analysis,* Milan Sonka, J. Michael Fitzpatrick, Eds., Volume 2 of *SPIE Handbook of Medical Imaging.*

REFEREED JOURNAL PAPERS

1. A. K. Funai, J. A. Fessler, D. T. B. Yeo, V. T. Olafsson, and D. C. Noll. Regularized field map estimation in MRI. *IEEE Trans. Med. Imag.*, 27(10):1484–94, October 2008.
2. V. T. Olafsson, D. C. Noll, and J. A. Fessler. Fast joint reconstruction of dynamic R_2^* and field maps in functional MRI. *IEEE Trans. Med. Imag.*, 27(9):1177–88, September 2008.
3. D. T. B. Yeo, J. A. Fessler, and B. Kim. Concurrent correction of geometric distortion and motion using the map-slice-to-volume method in EPI. *Mag. Res. Im.*, 26(5):703–14, June 2008.
4. D. Ruan, J. A. Fessler, J. M. Balter, R. I. Berbeco, S. Nishioka, and H. Shirato. Inference of hysteretic respiratory tumour motion from external surrogates: A state augmentation approach. *Phys. Med. Biol.*, 53(11):2923–36, June 2008.
5. A. Joshi, J. A. Fessler, and R. A. Koeppe. Improving PET receptor binding estimates from Logan plots using principal component analysis. *J. Cerebral Blood Flow and Metabolism*, 28(4):852–65, April 2008.
6. W. A. Grissom, C. Yip, S. M. Wright, J. A. Fessler, and D. C. Noll. Additive angle method for fast large-tip-angle RF pulse design in parallel excitation. *Mag. Res. Med.*, 59(4):779–87, April 2008.
7. R. Zeng, J. A. Fessler, J. M. Balter, and P. A. Balter. Iterative sorting for four-dimensional CT images based on internal anatomy motion. *Med. Phys.*, 35(3):917–26, March 2008.
8. D. Ruan, J. A. Fessler, and J. M. Balter. Mean position tracking of respiratory motion. *Med. Phys.*, 35(2):782–92, February 2008.
9. D. Ruan, J. A. Fessler, and J. M. Balter. Real-time prediction of respiratory motion based on nonparametric local regression methods. *Phys. Med. Biol.*, 52(23):7137–52, December 2007.
10. D. T. B. Yeo, T. L. Chenevert, J. A. Fessler, and B. Kim. Zero and first-order phase shift correction for field map estimation with dual-echo GRE using bipolar gradients. *Mag. Res. Im.*, 25(9):1263–71, November 2007.
11. J. A. Fessler. On NUFFT-based gridding for non-Cartesian MRI. *J. Mag. Res.*, 188(2):191–5, October 2007.
12. A. Yendiki and J. A. Fessler. Analysis of observer performance in unknown-location tasks for tomographic image reconstruction. *J. Opt. Soc. Am. A*, 24(12):B99–109, December 2007. Special issue on Image Quality.
13. M. W. Jacobson and J. A. Fessler. An expanded theoretical treatment of iteration-dependent majorize-minimize algorithms. *IEEE Trans. Im. Proc.*, 16(10):2411–22, October 2007.
14. C. Yip, W. A. Grissom, J. A. Fessler, and D. C. Noll. Joint design of trajectory and RF pulses for parallel excitation. *Mag. Res. Med.*, 58(3):598–604, September 2007.
15. K. F. Koral, J. N. Kritzman, V. E. Rogers, R. J. Ackermann, and J. A. Fessler. Optimizing the number

of equivalent iterations of 3D OSEM in SPECT reconstruction of I-131 focal activities. *Nucl. Instr. Meth. Phys. Res. A.*, 579(1):326–9, August 2007.

16. Y. Zhang-O'Connor and J. A. Fessler. Fast predictions of variance images for fan-beam transmission tomography with quadratic regularization. *IEEE Trans. Med. Imag.*, 26(3):335–46, March 2007.
17. R. Zeng, J. A. Fessler, and J. M. Balter. Estimating 3-D respiratory motion from orbiting views by tomographic image registration. *IEEE Trans. Med. Imag.*, 26(2):153–63, February 2007.
18. W. Grissom, C. Yip, Z. Zhang, V. A. Stenger, J. A. Fessler, and D. Noll. Spatial domain method for the design of RF pulses in multi-coil parallel excitation. *Mag. Res. Med.*, 56(3):620–9, September 2006.
19. C. Yip, J. A. Fessler, and D. C. Noll. Advanced three-dimensional tailored RF pulse for signal recovery in T_2^*-weighted functional magnetic resonance imaging. *Mag. Res. Med.*, 56(5):1050–9, November 2006.
20. P. E. Kinahan, A. M. Alessio, and J. A. Fessler. Dual energy CT attenuation correction methods for quantitative assessment of response to cancer therapy with PET/CT imaging. *Technology in Cancer Research and Treatment*, 5(4):319–28, August 2006.
21. D. Ruan, J. A. Fessler, J. M. Balter, and J-J. Sonke. Exploring breathing pattern irregularity with projection-based method. *Med. Phys.*, 33(7):2491–9, July 2006.
22. B. Feng, J. A. Fessler, and M. A. King. Incorporation of system resolution compensation (RC) in the ordered-subset transmission (OSTR) algorithm for transmission imaging in SPECT. *IEEE Trans. Med. Imag.*, 25(7):941–9, July 2006.
23. B. Feng, J. A. Fessler, P. H. Pretorius, R. D. Beach, G. L. Zeng, and M. A. King. Evaluation of the ordered-subset transmission (OSTR) algorithm for transmission imaging on SPECT systems using axially overlapping cone-beams. *IEEE Trans. Nuc. Sci.*, 53(3):1221–9, June 2006.
24. M. Ting, A. O. Hero, D. Rugar, C. Yip, and J. A. Fessler. Near optimal signal detection for finite state Markov signals with application to magnetic resonance force microscopy. *IEEE Trans. Sig. Proc.*, 54(6):2049–62, June 2006.
25. Y. Zhang-O'Connor and J. A. Fessler. Fourier-based forward and back-projectors in iterative fan-beam tomographic image reconstruction. *IEEE Trans. Med. Imag.*, 25(5):582–9, May 2006.
26. S. Ahn, J. A. Fessler, D. Blatt, and A. O. Hero. Convergent incremental optimization transfer algorithms: Application to tomography. *IEEE Trans. Med. Imag.*, 25(3):283–96, March 2006.
27. Y. K. Dewaraja, M. Ljungberg, and J. A. Fessler. 3-D Monte Carlo-based scatter compensation in quantitative I-131 SPECT reconstruction. *IEEE Trans. Nuc. Sci.*, 53(1):181–8, February 2006.
28. A. Yendiki and J. A. Fessler. Analysis of observer performance in known-location tasks for tomographic image reconstruction. *IEEE Trans. Med. Imag.*, 25(1):28–41, January 2006.
29. R. Narayanan, J. A. Fessler, H. Park, and C. R. Meyer. Diffeomorphic nonlinear transformations: A local parametric approach for image registration. In *Information Processing in Medical Im.*, volume LNCS 3565, pages 174–85, 2005.
30. C. Yip, J. A. Fessler, and D. C. Noll. Iterative RF pulse design for multidimensional, small-tip-angle selective excitation. *Mag. Res. Med.*, 54(4):908–17, October 2005.
31. J. A. Fessler, S. Lee, V. T. Olafsson, H. R. Shi, and D. C. Noll. Toeplitz-based iterative image reconstruction for MRI with correction for magnetic field inhomogeneity. *IEEE Trans. Sig. Proc.*, 53(9):3393–402, September 2005.
32. R. Zeng, J. A. Fessler, and J. M. Balter. Respiratory motion estimation from slowly rotating X-ray projections: Theory and simulation. *Med. Phys.*, 32(4):984–91, April 2005.
33. D. C. Noll, J. A. Fessler, and B. P. Sutton. Conjugate phase MRI reconstruction with spatially variant sample density correction. *IEEE Trans. Med. Imag.*, 24(3):325–36, March 2005.
34. J. W. Stayman and J. A. Fessler. Efficient calculation of resolution and covariance for fully-3D SPECT. *IEEE Trans. Med. Imag.*, 23(12):1543–56, December 2004.
35. J. Kim and J. A. Fessler. Intensity-based image registration using robust correlation coefficients. *IEEE*

Trans. Med. Imag., 23(11):1430–44, November 2004.

36. K. Lee, P. E. Kinahan, J. A. Fessler, R. S. Miyaoka, M. Janes, and T. K. Lewellen. Pragmatic fully 3D image reconstruction for the MiCES mouse imaging PET scanner. *Phys. Med. Biol.*, 49(19):4563–78, October 2004.
37. K. F. Koral, A. Yendiki, Q. Lin, Y. K. Dewaraja, and J. A. Fessler. Determining total I-131 activity within a VoI using SPECT, a UHE collimator, OSEM, and a constant conversion factor. *IEEE Trans. Nuc. Sci.*, 51(3):611–8, June 2004.
38. B. P. Sutton, D. C. Noll, and J. A. Fessler. Dynamic field map estimation using a spiral-in / spiral-out acquisition. *Mag. Res. Med.*, 51(6):1194–204, June 2004.
39. A. Yendiki and J. A. Fessler. A comparison of rotation- and blob-based system models for 3D SPECT with depth-dependent detector response. *Phys. Med. Biol.*, 49(11):2157–68, June 2004.
40. S. Sotthivirat and J. A. Fessler. Penalized-likelihood image reconstruction for digital holography. *J. Opt. Soc. Am. A*, 21(5):737–50, May 2004.
41. S. Ahn and J. A. Fessler. Emission image reconstruction for randoms-precorrected PET allowing negative sinogram values. *IEEE Trans. Med. Imag.*, 23(5):591–601, May 2004.
42. S. Matej, J. A. Fessler, and I. G. Kazantsev. Iterative tomographic image reconstruction using Fourier-based forward and back- projectors. *IEEE Trans. Med. Imag.*, 23(4):401–12, April 2004.
43. J. W. Stayman and J. A. Fessler. Compensation for nonuniform resolution using penalized-likelihood reconstruction in space-variant imaging systems. *IEEE Trans. Med. Imag.*, 23(3):269–84, March 2004.
44. L. J. Meng, W. L. Rogers, N. H. Clinthorne, and J. A. Fessler. Feasibility study of Compton scattering enhanced multiple pinhole imager for nuclear medicine. *IEEE Trans. Nuc. Sci.*, 50(5):1609–17, October 2003.
45. J. Nuyts and J. A. Fessler. A penalized-likelihood image reconstruction method for emission tomography, compared to post-smoothed maximum-likelihood with matched spatial resolution. *IEEE Trans. Med. Imag.*, 22(9):1042–52, September 2003.
46. I. A. Elbakri and J. A. Fessler. Segmentation-free statistical image reconstruction for polyenergetic X-ray computed tomography with experimental validation. *Phys. Med. Biol.*, 48(15):2543–78, August 2003.
47. S. Ahn and J. A. Fessler. Globally convergent image reconstruction for emission tomography using relaxed ordered subsets algorithms. *IEEE Trans. Med. Imag.*, 22(5):613–26, May 2003.
48. B. P. Sutton, D. C. Noll, and J. A. Fessler. Fast, iterative image reconstruction for MRI in the presence of field inhomogeneities. *IEEE Trans. Med. Imag.*, 22(2):178–88, February 2003.
49. S. Sotthivirat and J. A. Fessler. Relaxed ordered-subsets algorithm for penalized-likelihood image restoration. *J. Opt. Soc. Am. A*, 20(3):439–49, March 2003.
50. J. A. Fessler and B. P. Sutton. Nonuniform fast Fourier transforms using min-max interpolation. *IEEE Trans. Sig. Proc.*, 51(2):560–74, February 2003.
51. D. F. Yu and J. A. Fessler. Mean and variance of coincidence photon counting with deadtime. *Nucl. Instr. Meth. Phys. Res. A.*, 488(1-2):362–74, August 2002.
52. S. Sotthivirat and J. A. Fessler. Image recovery using partitioned-separable paraboloidal surrogate coordinate ascent algorithms. *IEEE Trans. Im. Proc.*, 11(3):306–17, March 2002.
53. D. F. Yu and J. A. Fessler. Edge-preserving tomographic reconstruction with nonlocal regularization. *IEEE Trans. Med. Imag.*, 21(2):159–73, February 2002.
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