

VITA
August 15, 2017

Name: Charles Addison Bouman

Education:

<i>Degree</i>	<i>Date</i>	<i>School</i>
B.S.E.E.	May 1981	University of Pennsylvania
M.S.E.E.	Sept. 1982	University of California at Berkeley
M.A.	Jan. 1987	Princeton University
Ph.D.	Oct. 1989	Princeton University

Dissertation: Hierarchical Modeling and Processing of Images

Honorary Society Memberships:

Tau Beta Pi

Honors:

1. E. Stuart Eichert Jr. Memorial Prize, University of Pennsylvania 1980.
2. Graduated Summa Cum Laude, University of Pennsylvania 1981.
3. Graduate Fellowship, University of California Berkeley 1981-1982.
4. IBM Graduate Fellowship recipient, Princeton University 1987-1989.
5. Caterpillar Faculty Fellow, Purdue University awarded 1990.
6. Senior Member of the IEEE, awarded 1997.
7. Fellow of the Institute of Electrical and Electronic Engineerings (IEEE), awarded 2001.
8. Raymond C. Bowman Award, for outstanding achievements in the development of curricular materials, mentoring of students, and research in digital imaging science, IS&T 2003
9. University Faculty Scholar, Purdue University 2003-2008.
10. Fellow of the American Institute for Medical and Biological Engineering (AIMBE), "For the development of innovative statistical reconstruction methods in CT imaging" February 27, 2004.
11. Fellow of the society for Imaging Science & Technology (IS&T), "For contributions to desktop and medical imaging, and as a leading educator in imaging science & technology" 2005.
12. Purdue University College of Engineering Team Award, HP Digital Printing Systems Team, 2006.
13. Member of the National Academies of Science and Engineering (National Research Council) committee on "Defeating Improvised Explosive Devices: Basic Research to Interrupt the IED Delivery Chain," 2005 - 2008. Committee consisting of academic, industrial, and government leaders to study the problem of improvised explosive devices. Chaired by John Anderson Provost Case Western Reserve University.
14. Editor-in-Chief of the IEEE Transactions on Image Processing, 1/2007-12/2009.
15. Fellow of the SPIE Professional Society, "For specific achievements in the areas of electronic and biomedical imaging," 2008.
16. Purdue University College of Engineering Engagement Award, MRI Facility, 2008.
17. IEEE Signal Processing Society, Distinguished Lecturer, 1/2009 - 12/2010.
18. IEEE Signal Processing Society, Board of Governors, 1/2009 - 12/2011, and 1/2013 - 12/2015.

19. IEEE Signal Processing Society, Vice President for Technical Directions, 1/2013 - 12/2015.
20. Electronic Imaging Scientist of the Year Award, 2014.
21. ICIP 2015, "Best Paper Award (2nd place)"
22. ICIP 2016, "Best Student Paper Award (1st place)" awarded to Kadri Aditya Mohan
23. Elected member of National Academy of Inventors, 2016.
24. Finalist for 2017 ACM Gordon Bell Prize.

Professional Experience:

September 1982 - August 1985	Full Staff Member, Massachusetts Institute of Technology, Lincoln Laboratory
September 1985 - August 1986	Research Assistant, Department of Electrical Engineering, Princeton University
September 1986 - December 1986	Teaching Assistant, Department of Electrical Engineering, Princeton University
August 1989 - March 1995	Assistant Professor, School of Electrical Engineering, Purdue University
August 1995 - August 2000	Associate Professor, School of Electrical Engineering, Purdue University
September 1999 - December 1999	Visiting Associate Professor Department of Radiology, Indiana University School of Medicine
August 2000 - 2008	Professor School of Electrical Engineering, Purdue University
April 2002 - Present	Professor by Courtesy School of Biomedical Engineering, Purdue University
October 2007 - 2016	Co-Director of Purdue University MRI Facility, School of Biomedical Engineering, Purdue University
August 2008 - June 2013	Michael and Katherine Birck Professor of Electrical and Computer Engineering, Purdue University
July 2013 - Present	Showalter Professor of Electrical and Computer Engineering and Biomedical Engineering, Purdue University

Consulting Activities:

1985-1986	Massachusetts Institute of Technology, Lincoln Laboratory
1996-2000	Hewlett-Packard
2001-2002	KLA Tencor
2000-2002	Lexmark International, Inc.
2002-2004	Microsoft Corporation
2004	Thomson Multimedia
2006-	mPlexus

Outside Activities:

2015- Principle in High Performance Imaging L.L.C.

Research Grants and Contracts Received:

1. Principal Investigator: Purdue Research Foundation David Ross Grant, "Multiscale Modeling and Processing for Image Analysis," fund/center number 690 1285-1710, 12/31/90-2/28/93, \$18,000.
2. Principal Investigator: NEC Faculty Fellow, 7/1/91-6/30/92, \$25,000.

3. Principal Investigator: US Army Construction Engineering Research Laboratory, "Multispectral Segmentation Using Contextual Information," grant number DACA8890D0029, 1/29/91-9/29/91, \$23,876.
4. Principal Investigator: NEC Faculty Fellow, 7/1/92-6/30/93, \$25,000.
5. Principal Investigator: US Army Construction Engineering Research Laboratory, "Multiscale Computational Methods for Contextual Segmentation of Multispectral Data," grant number DACA8890D0029G, 2/19/92-12/31/92, \$24,949.
6. Principal Investigator, Jan Allebach; co-principal investigators, Charles A. Bouman, David M. Chelberg, Edward J. Delp: National Science Foundation, "CISE Research Instrumentation: A Multi-Spectral/Multi-Sensor Systems Laboratory," grant number CDA-9121854, 7/1/92-6/30/93, \$72,000.
7. Principal Investigator, Anthony Maciejewski; co-principal investigator, Charles A. Bouman: NEC Corporation, "The Design of a Cooperation Controller for Multiple Robot Coordination," 8/1/92-7/31/93, \$70,000.
8. Co-principal investigator with Jan Allebach: Eastman Kodak Company, "Color Imaging Research," grant number 2540670, 1/1/92-9/30/92, \$43,735 plus \$25,000 licensing fee.
9. Co-principal investigator with Ken Sauer at University of Notre Dame: National Science Foundation, "Model Based Tomography: A Comprehensive Approach to Iterative Image Reconstruction," grant number MIP93-00560 11/15/93-8/31/96, total award \$237,496, (\$120,840 contracted to Purdue University through Notre Dame).
10. Co-principal investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research in Digital Halftoning" 3/3/93, \$30,000 cash plus \$83,999 equipment.
11. Co-principal investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research in Digital Halftoning," 4/26/93, \$63,292 in equipment.
12. Co-principal investigator with Jan P. Allebach: Apple Computer, Inc. Voluntary Support, "Image Processing Investigations," 5/20/93, \$15,000 cash plus \$17,650 in equipment.
13. Co-principal investigator with Jan P. Allebach: Hewlett-Packard Company Voluntary Support, "Research in Digital Halftoning," 9/1/93, \$2,783 in equipment.
14. Co-principal investigator with Jan Allebach: Hewlett-Packard Company, grant number SRA-U293, "Research in Digital Halftoning," 10/1/93-5/1/94, \$10,000 plus \$5,000 licensing fee.
15. Co-principal investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research on Printer Characterization and Development of New Halftoning Algorithms," 10/21/93, \$56,865 cash.
16. Co-principal investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Image Segmentation Research," 10/22/93, \$5,000 cash.
17. Co-principal investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research on Printer Characterization and Development of New Halftoning Algorithms," 11/16/93, \$66,610 in equipment.
18. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research on Printer Characterization and Development of New Halftoning Algorithms," 12/31/93, \$2,924 in equipment.
19. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research in Digital Halftoning," 2/15/94, \$11,190 in equipment.
20. Co-Principal Investigator with Jan Allebach: Apple Computer, Inc. Voluntary Support, "Image Processing Investigations (2)," 3/23/94, \$25,622 cash plus \$5,301 in equipment.

21. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research on Printer Characterization and Development of New Digital Halftoning Algorithms for Printing Applications," 3/14/94, \$20,000 cash plus \$385,702 in equipment.
22. Co-Principal Investigator with Jan Allebach: Color Savvy, "Research on Color Measurement," 4/10/94, \$5,000 cash.
23. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company, Adward No. SRAV874, "Multiscale Feature Characterization for High Resolution Image Rendering," 5/15/94 - 5/14/95 \$86,972 plus \$40,000 license fee.
24. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, Adward No. 6712163, "Image Segmentation Research," 10/22/94, \$5,000.
25. Principal Investigator: US Army Construction Engineering Research Laboratory, "Testing and Documentation of the SIGSET Clustering Algorithm," grant number DACA88-93-D-0011, 9/27/94-8/31/95, \$13,525.
26. Principal Investigator, Anthony Maciejewski; co-principal investigator, Charles A. Bouman: NEC Corporation, "Automated Failure Detection," 1/1/95 to 12/31/95, \$63,000.
27. Co-Principal Investigator with Jan Allebach: Xerox Corporation Voluntary Support, Adward No. 6712425, "Research on Document Segmentation," 1/03/95, \$15,000.
28. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research on Printer Characterization and Print Quality Assessment," 1/20/95, \$60,000 cash plus \$72,478.00 equipment.
29. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Digital Halftoning for Printing," 2/9/95, \$629 equipment.
30. Co-Principal Investigator with Jan Allebach: LG Electronics Co., Ltd. Voluntary Support, "Electronic Imaging Systems Laboratory," 5/15/95, \$11,000.
31. Co-Principal Investigator with Jan Allebach: Apple Computer, Inc. Voluntary Support, "Research on Color Imaging," 5/23/95, \$26,000 cash plus \$16,263 equipment and software.
32. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Research on Digital Halftoning" 6/29/95, \$10,000 cash plus \$52,729 equipment.
33. Co-Principal Investigator with Jan Allebach and Z. Pizlo: Hewlett-Packard Company Voluntary Support, "Research on Printer Characterization and Print Quality Assessment" 6/28/95, \$30,000 cash plus \$223,017 equipment.
34. Principal Investigator, Jan Allebach; co-principal investigators, Charles A. Bouman, Edward J. Coyle, Edward J. Delp, Anthony A. Maciejewski, Zygmunt Pizlo and Ness B. Shroff: Hewlett-Packard Company Equipment Gift, HP Gift No. 30009, "Infrastructure for a New Curriculum in Video and Image Systems Engineering," 1/25/96, \$319,845.70 equipment.
35. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company, "High Resolution Image Rendering," 5/15/95 - 5/14/96 \$85,500 plus \$40,000 license fee.
36. Principal Investigator, Jan Allebach; co-principal investigators, Charles A. Bouman, Edward J. Coyle, Edward J. Delp, Anthony A. Maciejewski, Zygmunt Pizlo and Ness B. Shroff: Hewlett-Packard Company Equipment Gift, HP Gift No. 30009.1, "Infrastructure for a New Curriculum in Video and Image Systems Engineering," 3/1/96, \$29,170.00 equipment.
37. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company, Adward No. 3401670, "High Resolution Image Interpolation from Degraded Image Sources," 5/15/96 - 5/14/97 \$91,355 plus \$35,000 license fee and \$725 in equipment.

38. Co-Principal Investigator with Jan Allebach and Z. Pizlo: Hewlett-Packard Company Voluntary Support, "Image Quality Metrics" HP Gift No. 31854.1, 7/10/96, \$35,000 cash plus \$112,676 equipment.
39. Principal Investigator, Jan Allebach; co-principal investigators, Charles A. Bouman, Edward J. Coyle, Edward J. Delp, Anthony A. Maciejewski, Zygmunt Pizlo and Ness B. Shroff: Hewlett-Packard Company Equipment Gift, HP Gift No. 30009.2, "Infrastructure for a New Curriculum in Video and Image Systems Engineering," 8/22/96, \$6,000.00 cash.
40. Co-Principal Investigator with Jan Allebach: Hewlett-Packard Company Voluntary Support, "Travel on 12-15-95" Invoice No. 31854.1, 8/27/96, \$2,969.59.
41. Principal Investigator Charles A. Bouman; co-principal investigator, Jan Allebach: Apple Computer, Inc. Voluntary Support, "Image Similarity Metrics," 9/1/96, \$26,000 cash plus \$22,101 equipment.
42. Principal Investigator, Jan Allebach; co-principal investigators, Charles A. Bouman, Edward J. Coyle, Edward J. Delp, Anthony A. Maciejewski, Zygmunt Pizlo and Ness B. Shroff: Hewlett-Packard Company Equipment Gift, HP Gift No. 32322, "Infrastructure for a New Curriculum in Video and Image Systems Engineering," 9/6/96, \$479,609.00 equipment.
43. Principal Investigator, Jan Allebach; co-principal investigators, Charles A. Bouman, Edward J. Coyle, Edward J. Delp, Anthony A. Maciejewski, Zygmunt Pizlo and Ness B. Shroff: Hewlett-Packard Company Equipment Gift, HP Gift No. 30009.3, "Infrastructure for a New Curriculum in Video and Image Systems Engineering," 12/17/96, \$201,000 equipment.
44. Principal Investigator, E.J. Coyle: co-principal investigators, J.P. Allebach, C.A. Bouman, E.J. Delp, M.P. Harper, L.H. Jamieson, N.B. Shroff: National Science Foundation, "CISE Research Instrumentation: Storage and I/O Devices for the Support of Research in Imaging Systems, Networks, and Video and Speech Processing," grant number CDA 96-17388, 1/1/97-12/31/98, \$150,626.
45. Co-principal investigator with Ken Sauer at University of Notre Dame: National Science Foundation, "Nonhomogeneous and Nonlinear Methods for Tomographic Estimation," award number 9707763-MIP 8/1/97-8/1/00, total award \$274,947, (\$142,762 contracted to Purdue University through Notre Dame).
46. Principal Investigator, Jan Allebach; Co-Principal Investigators: C. A. Bouman, G. Chiu, Z. Pizlo, "Improving Image Quality: Metrics, Models, and Scaling," Hewlett-Packard Company, 8-18-97 to 8-17-98, \$142,000 equipment.
47. Principal Investigator Charles A. Bouman; co-principal investigator, Jan Allebach: Apple Computer, Inc. Voluntary Support, "Image Similarity Metrics," award number 6712786, 8/12/97, \$26,000 cash.
48. Principal Investigator Charles A. Bouman; co-principal investigator, Jan Allebach: Xerox Corporation Voluntary Support, "Improvement of Document Segmentation Techniques," award number 6712944, 8/12/97, \$15,000 cash.
49. Principal Investigator Charles A. Bouman; co-principal investigator, Jan Allebach: Xerox Corporation, "Document Segmentation for High Speed Imaging Applications," DSP number 0BA76, 08/22/97 - 12/31/97, \$25,000 cash.
50. Co-Principal Investigator with J. P. Allebach, "Polaroid Polaview 220-DLP Projector for the Video and Image Systems Engineering Laboratory," Polaroid Corporation, equipment donation, 8/22/97, \$9,495.
51. Co-Principal Investigator (Other Co-PIs: J.P. Allebach, M.R. Bell, E.K.P. Chong, E. Coyle, E.J. Delp, P.C. Doerschuk, S.B. Gelfand, J.V. Krogmeier, M.P. Harper, L.H. Jamieson, N.B. Shroff, M.D. Zoltowski), "Intel Equipment for Processing and Communication Intensive Tasks that Enable New Networked Video, Image, and Speech Applications," Intel Corporation, 7-1-97 to 6-30-00, \$598,000.
52. Principal Investigator, Jan Allebach; Co-Principal Investigators: C. A. Bouman, E. J. Coyle, E. J. Delp, A. A. Maciejewski, N. B. Shroff, and Z. Pizlo: Hewlett-Packard Company Voluntary Support, Gift No. 30009.4 "Infrastructure for a New Curriculum in Video and Image Systems Engineering," 6-2-98, \$344,288 equipment.

53. Principal Investigator, Charles A. Bouman; co-principal investigator, Jan Allebach: Xerox Foundation Voluntary Support, "Improvement of Document Segmentation Techniques," award number 6712944, 7/20/98, \$15,000 cash.
54. Principal Investigator, Jan Allebach; Co-Principal Investigators: C. A. Bouman, G. Chiu, Z. Pizlo, "Improving Image Quality: Metrics, Models, and Scaling," Hewlett-Packard Company, Award No. ERPS-97040.1, 8/18/97 to 8/17/98, \$248,399 plus \$142,000 equipment.
55. Principal Investigator, Jan Allebach; Co-Principal Investigators: C. A. Bouman, G. Chiu, Z. Pizlo: "Research on Artifact Reduction in Digital Printing," Hewlett-Packard Company, Award No. 4024670, 2/1/98 to 1/31/99, \$388,372 plus \$131,428.40 equipment.
56. Principal Investigator, Jan Allebach, Co-Principal Investigators: C. A. Bouman, G. Chiu, "Research on Artifact Reduction in Digital Printing," Hewlett-Packard Company, Award No. 4024670, 2/1/99 to 1/31/00, \$500,000.
57. Principal Investigator Charles A. Bouman: Xerox Corporation Voluntary Support, "Improvement of Document Segmentation Techniques," 8/20/99, \$15,000 cash.
58. Principal Investigator J. P. Allebach, Co-Principal Investigators: C. Bouman, G. Chiu, and Z. Pizlo, "Print Quality Improvement," Hewlett-Packard Company, Voluntary Support, Award No. ERP-20005, 1/24/00, \$5,881.
59. Principal Investigator J. P. Allebach, Co-Principal Investigators: C. Bouman, G. Chiu, and Z. Pizlo, "Print Quality Improvement," Hewlett-Packard Company, Award No. ERP-20005-1, 2/1/00 to 1/31/01, \$292,579.
60. Principal Investigator J. P. Allebach, Co-Principal Investigators: C. Bouman and M. Johnson, "New Laboratory/Lecture Facility for the Video and Image Systems Engineering (VISE) Program," Hewlett-Packard Company Voluntary Support, Gift No. 82396.1, 3/20/00, \$223,042 equipment.
61. Principal Investigator C. A. Bouman, Co-Principal Investigators: K. J. Webb, and R. P. Millane, National Science Foundation, "Multigrid Optical Diffusion Tomography," Award No. 0073357-CCR 5/1/00-4/30/03, total award \$380,176.
62. Principal Investigator J. P. Allebach, Co-Principal Investigators: C. Bouman, G. Chiu, M. Lehto, Z. Pizlo, and Y. Yih, "Print Quality Improvement and Remote Print Defect Diagnostics," Hewlett-Packard Company, Voluntary Support, Award No. ERP-20023, 6-2-00, \$18,446.
63. Principal Investigator G. T.-C. Chiu, Co-Principal Investigators: J. P. Allebach, and C. A. Bouman, "DSP-Based Ink Jet Printing System," Texas Instruments, Inc., Award No. 1220001039, 7/12/00 to 4/11/01, \$92,394.
64. C. A. Bouman, Principal Investigator, "Mutigrid Optimization Algorithms for Optical Tomography," PRF Research Grant, Award No. 6903366, 8/1/00 to 7/31/02, \$26,204.
65. C. A. Bouman, Principal Investigator, "Statistical Methods for Tomographic Image Reconstruction and Analysis," part of the 21st Century Research and Technology Fund project entitled "Indiana Center for Excellence in Biomedical Imaging," 8/4/00 through 8/3/02, \$37,822.
66. C. A. Bouman, Principal Investigator, "Document Segmentation Research," Xerox Corporation, Award No. 6712944, 12/06/00 to 12/5/01, \$15,000.
67. Co-Principal Investigator (electronic imaging systems): Ford Foundation gift to Purdue University to fund a "Perception-Based Engineering Laboratory." Co-PIs from ME, ECE, AUS and Psychological Sciences at Purdue collaborated with Dan Hirleman (Head, ME), Bob Bernhard (Director, Herrick), Shari Rodriguez (ME Development), and Patricia Davies (ME, lead co-PI) on the proposal. The funds will be used to construct a new facility and purchase state-of-the-art research equipment. The facility, which will form part of the Ray W. Herrick Laboratories, will be shared by this interdisciplinary team of PIs for both teaching and research, 1/24/01 to 1/23/05, \$3,500,000.

68. Principal Investigator J. P. Allebach, Co-Principal Investigators: C. Bouman, G. Chiu, and Z. Pizlo, "Print Quality Improvement," Hewlett-Packard Company, Award No. ERP-2001-002, 2/1/01 to 1/31/02, \$323,355.
69. C. A. Bouman, Principal Investigator, "Research on Iterative Reconstruction Methods for Spiral X-ray CT," General Electric Company, 4/16/01-10/15/01, \$18,687.
70. Principal Investigator J. P. Allebach, Co-Principal Investigators: M. Atallah, C. Bouman, G. Chiu, E. Coyle, E. Delp, A. Elmagarmid, J. Krogmeier, C. Rosenberg, "A Proposal to Establish a Program in Mobile, E-Services Printing at Purdue University," Hewlett-Packard, Voluntary Support, Gift No. 86350.1, 6/27/01, \$143,983 equipment.
71. Principal Investigator J. P. Allebach, Co-Principal Investigators: M. Atallah, C. Bouman, G. Chiu, E. Coyle, E. Delp, A. Elmagarmid, J. Krogmeier, C. Rosenberg, "A Proposal to Establish a Program in Mobile, E-Services Printing at Purdue University," Hewlett-Packard, Voluntary Support, Gift No. 86350.2, 7/11/01, \$63,354 cash.
72. Principal Investigator J. P. Allebach, Co-Principal Investigators: M. Atallah, C. Bouman, G. Chiu, E. Coyle, E. Delp, A. Elmagarmid, J. Krogmeier, C. Rosenberg, "A Proposal to Establish a Program in Mobile, E-Services Printing at Purdue University," Hewlett-Packard, Voluntary Support, Gift No. 86350.3, 8/29/01, \$3,790 equipment.
73. C. A. Bouman, Principal Investigator, "Color Raster Document Representation Techniques," Xerox Corporation, 10/5/01, \$15,000.
74. C. A. Bouman, Principal Investigator, "Artifact Reduction in Helical X-Ray CT," General Electric Company, 10/16/01-8/31/02, \$36,935.
75. Principal Investigator J. P. Allebach, Co-Principal Investigators: C. Bouman, G. Chiu, and Z. Pizlo, "Print Quality Improvement Program," Hewlett-Packard Company, 2/1/02 to 1/31/03, \$473,642
76. C. A. Bouman, Principal Investigator, "Iterative Reconstruction for Multislice Helical X-ray CT," General Electric Company, 9/1/02-8/31/03, \$43,028.
77. C. A. Bouman, Principal Investigator, "Color Raster Document Representations Techniques," Xerox Corporation, 10/4/02, \$15,000.
78. Principal Investigator M. R. Bell, Co-Principal Investigators: C. A. Bouman, J. V. Krogmeier, C. P. Rosenberg, K. Roy, N. Shroff, K. Webb, "Modulated Load Harmonic Reradiation for Low-Power Communication from Large Collections of Sensors," DARPA, 8/1/2002 - 7/1/2002, Contract No. MDA 972-02-1-0032, \$450,000.
79. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, G. Chiu, and Z. Pizlo, "Print Quality Improvement Program," Hewlett-Packard Company, Purdue Acct. No. 670-1285-4024, 2-1-03 to 1-31-04, \$499,999.
80. J. P. Allebach, Principal Investigator, Co-Principal Investigator: C. Bouman, "InkJet Imaging Pipeline," Hewlett-Packard Company, Acct. No. 670-1285-5511, 2-1-03 to 1-31-04, \$139,456.
81. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, J. Siskind, and M. Harper, "A Structural Approach to Document Browsing and Management," Xerox Corporation, 7/30/03, \$20,000.
82. J.M. Siskind, Principal Investigator, Co-Principal Investigators: C.A. Bouman and I. Pollak, NSF award 0329156IIS, "Hierarchal Perceptual Organization with the Center-Surround Algorithm," 9/1/03 to 8/31/06, \$500,000.
83. C. A. Bouman, Principal Investigator, "Mixed Raster Content Image Compression," Samsung Electronics Co., LTD, Award No. 1320036727, 11/01/03 - 10/31/04, \$126,852.00.

84. C. A. Bouman, Principal Investigator, "Efficient Computation in Iterative Helical X-ray CT Reconstruction," General Electric Company, Award No. 1320010968, 9/1/03-8/31/04, \$47,652.00.
85. J. P. Allebach, Principal Investigator, Co-Principal Investigator: C. Bouman, G. Chiu, and Z. Pizlo, "Print Quality Improvement Program," Hewlett-Packard Company, Purdue Acct. No. 670-1285-4024, 2-1-04 to 1-31-05, \$542,160.
86. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, M. Harper, and J. P. Allebach, "A Structural Approach to Document Browsing and Management," Xerox Corporation, 8/17/04, \$20,000.
87. Principal Investigator C. A. Bouman, Co-Principal Investigators: K. J. Webb, "Parametric Optical Diffusion Tomography," National Science Foundation, Award No. 0431024-CCR 9/15/04-8/31/07, total award \$449,998.00
88. C. A. Bouman, Principal Investigator, "Evaluation and Design of Iterative 2-D and Cone Beam CT Reconstruction," General Electric Company, Award No. 1320047108, 9/1/04-8/31/05, \$53,318.00.
89. C. A. Bouman, Principal Investigator, "Mixed Raster Content Image Compression," Samsung Electronics Co., LTD, Award No. 1320036727, 1/1/05 - 12/31/05, \$137,817.
90. J. P. Allebach, Principal Investigator, Co-Principal Investigator: C. Bouman, "InkJet Imaging Pipeline," Hewlett-Packard Company, P.O. No. SBY161377, 2-1-04 to 1-31-05, voluntary support, \$91,937 (Purchase Order received from HP, payment pending).
91. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, G. Chiu, and Z. Pizlo, "Print Quality Improvement Program," Hewlett-Packard Company, Purdue Acct. No. 670-1285-4024, 2-1-05 to 1-31-06, \$506,739.
92. Co-Principal Investigator with J. P. Allebach, "InkJet Imaging Pipeline," Hewlett-Packard Company, SPS Award No. 1120054678, 2-1-05 to 1-31-06, voluntary support \$95,000.
93. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, M. Harper, and J. P. Allebach, "A Structural Approach to Document Browsing and Management," Xerox Corporation, 8/10/05, \$20,000.
94. C. A. Bouman, Principal Investigator, "Parallel Implementation of Helical 3D CT Iterative Reconstruction," General Electric Company, Award No. 1320010968, 9/1/05-8/31/06, \$52,822.00
95. T. Talavage, Principal Investigator, Co-Principal Investigator: C. A. Bouman, "Systematic Artifact Reduction in Auditory fMRI," National Institutes of Health/NIBIB R01 EB003990, 2-1-2006 - 1-31-2010, \$1,333,244.
96. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, G. Chiu, Z. Pizlo, I. Pollak, and Y. Yih, "Print Quality Improvement Program," Hewlett-Packard Company, Purdue Acct. No. 670-1285-4024, 2-1-06 to 1-31-07, \$825,000.
97. Co-Principal Investigator with J. P. Allebach, "InkJet Imaging Pipeline," Hewlett-Packard Company, P.O. No. SBY282457, 2/1/06 to 1/31/2007, voluntary support \$122,258.
98. C. A. Bouman, Principal Investigator, Co-Principal Investigators: G. T.-C. Chiu, and J. P. Allebach, "Next Generation Image Capture to Improve Copy Quality - A Two-Phase Approach," Samsung Electronics Corporation, 5/22/2006 to 9/21/2007, \$313,662.
99. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, and J. P. Allebach, "Context Dependent Image and Document Processing," Xerox Corporation, 7/27/2006, \$20,000.
100. C. A. Bouman, Principal Investigator, "IRCC Support and Enhancement: Delivering Iterative Reconstruction Innovation into the Clinical Environment," General Electric Company, Award No. 1320010968, 9/1/2006-8/31/2007, \$70,788.

101. Co-Principal Investigator with J. P. Allebach, "Text-Based Personalization of Images," Xerox Corporation, 01/01/2007 - 4/30/2008, \$100,000.
102. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, M. Boutin, G. Chiu, Z. Pizlo, I. Pollak, and Y. Yih, "Print Quality Improvement Program," Hewlett-Packard Company, Purdue Acct. No. 670-1285-4024, 2/1/2007 to 1/31/2008, \$825,000.
103. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, M. Boutin, "InkJet Imaging Pipeline," Hewlett-Packard Company, P.O. No. SBY423521, 2/1/2007 to 1/31/2008, voluntary support \$122,384.
104. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, and J. P. Allebach, "Context Dependent Image and Document Processing," Xerox Corporation, 7/30/2007, \$20,000.
105. C. A. Bouman, Principal Investigator, "IRCC Support and Enhancement: Delivering Iterative Reconstruction Innovation into the Clinical Environment," General Electric Company, 9/1/2007-8/31/2008, \$84,723.
106. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, M. Boutin, G. Chiu, Z. Pizlo, I. Pollak, and Y. Yih, "Print Quality Improvement Program," Hewlett-Packard Company, Purdue Acct. No. 670-1285-4024, 2/1/2008 to 1/31/2009, \$659,620.
107. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman and M. Boutin, "InkJet Imaging Pipeline," Hewlett-Packard Company, P.O. No. SBY528421, 2/1/2008 to 1/31/2009, voluntary support \$124,549.
108. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, and J. P. Allebach, "Context Dependent Image and Document Processing," Xerox Corporation, 8/1/2008, \$20,000.
109. C. A. Bouman, Principal Investigator, "Bringing IR to the Clinic: Expanding Imaging Applications," General Electric Company, 9/1/2008-8/31/2009, \$87,817.
110. Co-Principal Investigator with J. P. Allebach, "Text-Based Personalization of Images Phase 2," Xerox Corporation, 01/01/2009 to 05/31/2010, \$100,000.
111. T. Talavage, Principal Investigator, Co-Principal Investigators L. Leverenz, C. Bouman, E. Nauman, and D. Miller, "Predictive Modeling of Cognitive Impairment from Head Trauma in Collegiate Football Players," Indiana Spinal Cord and Brain Injury Fund Reserach Grant Program, 1/1/09 to 12/31/2010, \$120,000.
112. T. Talavage, Principal Investigator, Co-Principal Investigators: Charles A. Bouman, Eric A. Nauman, Larry J. Leverenz, Dennis A. Miller, Purdue, "Predictive Modeling of Cognitive Impairment from Head Trauma in Collegiate Football Players," General Electric Healthcare, 7/1/2009 - December 31, 2010, \$50,000.
113. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, and J. P. Allebach, "Automated Analysis and Repurposing of Internet Documents," Xerox Corporation, 8/1/2009, \$20,000.
114. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, G. Chiu, and Y. Yih, "Print Quality Improvement Program," Hewlett-Packard Company, P.O. No. SBY723246, Purdue Acct. No. 670-1285-4024, 9/1/09 to 7/31/2010, \$375,000.
115. C. A. Bouman, Principal Investigator, "Model Based Image Reconstruction for Clinical X-ray CT," General Electric Company, 9/1/2009 to 8/31/2010, \$92,594.
116. C. A. Bouman Principal Investigator, "Analysis and Detection of High Dimensional Signals using the Sparse Matrix Transform," Army Research Office, 9/15/2009 to 07/31/2012, \$266,830.00. (Funded in four periods. Funding received for initial period starting 9-15-2009 for \$47,661.00; second period starting 02/14/2010 for \$85,527; third period starting 02/14/2011 for \$84,308; fourth period starting 02/14/2012 for \$49,334.)

117. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, G. Chiu, and Y. Yih, "Print Quality Improvement Program Amendment," Hewlett-Packard Company, P.O. No. SBB334211, Purdue Acct. No. 670-1285-4024, 6/1/10 to 8/31/2010, \$18,750.
118. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, and J. P. Allebach, "Automated Analysis and Repurposing of Internet Documents," Xerox Corporation, 7/29/2010, \$20,000.
119. C. A. Bouman, Principal Investigator, "Image Quality Enhancement for Clinical Use of Model Based Image Reconstruction," General Electric Company, 9/1/2010 to 8/31/2011, \$106,452.
120. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, G. Chiu, and Y. Yih, "Print Quality Improvement Program," Hewlett-Packard Company, P.O. No. SBB430765, Purdue Grant No. 204756, 9/1/10 to 8/31/2011, \$600,000.
121. C. A. Bouman, Principal Investigator, "Next Generation Priors for Model-Based Reconstruction in Scanned Baggage Security Applications," subcontract through Northeastern University ALERT Department of Homeland Security Center, 11/15/10-6/30/11, \$83,271.
122. C. A. Bouman, Principal Investigator, "Model-Based CT Reconstruction for Multiview Inspection," Department of Homeland Security (DHS) subcontract through Quantum Magnetics (Morpho Security), 6/2/2011 - 2/7/2013, \$115,144.
123. C. A. Bouman, Principal Investigator, Co-Principal Investigators: I. Pollak, and J. P. Allebach, "Automated Analysis and Repurposing of Internet Documents," Xerox Corporation, 8/1/2011, \$20,000.
124. C. A. Bouman, Principal Investigator, "Electronic Imaging for Microscopy: Tool Development Component," United Technologies Corporation/Air Force Research Laboratory, 8/1/2011 - 7/31/2012, \$86,869.
125. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, "Print Quality Improvement Program," Hewlett-Packard Company, P.O. No. SBB1122661, 9-1-11 to 8-31-12, \$725,000.
126. C. A. Bouman, Principal Investigator, "Toward Model-Based Reconstruction in Scanned Baggage Security Applications," subcontract through Northeastern University ALERT Department of Homeland Security Center, 7/01/11-6/30/12, \$50,000.
127. C. A. Bouman, Principal Investigator, "Precision Modeling in CT Iterative Image Reconstruction," General Electric Company, 9/1/2011 to 8/31/2012, \$106,552.
128. J. P. Allebach, Principal Investigator, Co-Principal Investigators: C. Bouman, "Print Quality Improvement Program," Hewlett-Packard Company, P.O. No. SBB1696511, Purdue Account No. 8000038375-378/43010000, 9/1/12 to 8/31/13, \$750,000.
129. C. A. Bouman, Principal Investigator, "Model-Based HAADF-STEM Tomograph," UES Inc., (Air Force Research Labs), 3/19/2012 - 3/18/2013, \$25,000.
130. C. A. Bouman, Principal Investigator, "Model-Based Iterative Reconstruction for Scanned Baggage Security," subcontract through Northeastern University ALERT Department of Homeland Security Center, 7/01/12-12/31/12, \$150,000.
131. C. A. Bouman, Principal Investigator, "High-Challenge Applications in Model-Based CT Image Reconstruction," General Electric Company, 9/1/2012 to 8/31/2013, \$107,641.
132. C. A. Bouman, Principal Investigator, Co-Principal Investigators: M. L. Comer, "Managing the Mosaic of Microstructure," Air Force MURI, subcontract through Carnegie Mellon University, 9/30/2012 - 09/30/2015 (Basic 3 year period of MURI), \$780,000.
133. C. A. Bouman, Principal Investigator, Co-Principal Investigators: M. L. Comer, "Spectroscopic Absorption Sensing of High Velocity Flow Fields," ISS Inc., (Air Force Research Labs), 11/15/2012-11/30/2013, \$50,000.

134. C. A. Bouman, Principal Investigator, "Designing Morphologies under Target Electrical Property Constraints," UES Inc., (Air Force Research Labs), 03/01/2013-10/31/2013, \$60,000.
135. C. A. Bouman, Principal Investigator, "Model-Based Reconstruction for XDi Imaging," Morpho Detection, Inc. (DHS subcontract) 03/06/2013 - 01/31/2015, \$135,387.
136. C. A. Bouman, Principal Investigator, "Model-Based Iterative Reconstruction for Scanned Baggage Security," subcontract through Northeastern University ALERT Department of Homeland Security Center, 07/01/2013 - 10/31/2013, \$15,000.
137. C. A. Bouman, Principal Investigator, "ATR for the Detection of Targets in CT Baggage Scans," subcontract through Northeastern University ALERT Department of Homeland Security Center, 07/25/2013-01/14/2015, \$129,000.
138. C. A. Bouman, Principal Investigator, "CT Image Reconstruction and Processing for Air Transportation Security," subcontract through Northeastern University ALERT Department of Homeland Security Center, 9/1/2013 - 06/30/2014, \$65,000. (Portion of \$275,000 DHS ALERT initial nine month subcontract to Purdue.)
139. C. A. Bouman, Principal Investigator, "High-Challenge Applications in Model-Based CT Image Reconstruction," General Electric Company, 9/01/2013 to 8/31/2014, \$108,033.
140. J. Allebach Principal Investigator, Co-Principal Investigators C. Bouman and Y. Lu, "Print Quality Improvement Program," Hewlett-Packard Company, P.O. No. SBB2229524, Purdue Account No. 8000038375-378/43010000, 9/1/2013 to 8/31/2014, \$637,000.
141. C. A. Bouman, Principal Investigator, Co-Principal Investigator: M. L. Comer, "Designing Morphologies under Target Electrical Property Constraints," UES Inc., (Air Force Research Labs), 03/03/2014 to 03/31/2015, \$30,000.
142. C. A. Bouman, Principal Investigator, "CT Image Reconstruction and Processing for Air Transportation Security," subcontract through Northeastern University ALERT Department of Homeland Security Center, 07/01/2014 to 6/30/2015, \$75,000.
143. C. A. Bouman, Principal Investigator, "Transitioning Advanced Imaging Technology to the Revolution System," General Electric Company, 9/01/2014 to 8/31/2015, \$113,332.
144. C. A. Bouman, Principal Investigator, "Tunable Diode Laser Absorption Spectroscopy Computed Tomography (TDLAS CTM) Study," AFRL via ISSI, 09/01/2014 - 09/01/2015, \$70,000.
145. S. J. Kisner, Principal Investigator, Key Individuals: C. A. Bouman, S. P. Midkiff, and A. Raghunathan, "Inversion Engine: A Custom Hardware/Software/Algorithmic Solution for Fast MBIR Imaging," SBIR awarded to High Performance Imaging, L.L.C., 09/01/2014 to 02/28/2015, \$99,978.51.
146. C. A. Bouman, Principal Investigator, Co-Principal Investigators: S. P. Midkiff and A. Raganathan, "Jointly Optimized Software and Algorithms for Fast MBIR Imaging," High Performance Imaging, LLC, (SBIR Phase I subcontract) 09/25/2014 to 2/16/2015, \$32,000.
147. C. A. Bouman, Principal Investigator, "Advanced Reconstruction Algorithms for the 9000-9400 HME System," Morpho Detection, Inc. (DHS subcontract) 11/15/2014 - 06/30/2015, \$58,209.
148. C. A. Bouman, Principal Investigator, "Ultrasonic Phased Arrays and Interactive Reflectivity Tomography for Nondestructive Inspection of Injection and Production Wells in Geothermal Energy Systems," ORNL via UT-BATTELLE LLC, 01/01/2015 to 09/30/2015, \$45,000.
149. C. A. Bouman, Principal Investigator, "Point Probe Sampling for Optimized NDE Investigation," AFRL via UTC, 3/27/2015 to 3/27/2017, \$235,000.

150. Juan P Wachs, Principal Investigator, Co-Principal Investigator: C. A. Bouman, "Sense and Avoid Techniques to Enhance Swarm Intelligence for Small, Lightweight Unmanned Aerial Vehicles (UAVs)," 03/31/2015 to 03/30/2016, \$90,000.
151. C. A. Bouman, Principal Investigator, "Model-Based Reconstruction for XDi Imaging," Morpho Detection, Inc. (DHS subcontract) 02/01/2015 - 08/31/2015, \$44,953.50.
152. S. J. Kisner, Principal Investigator, Key Individuals: C. A. Bouman, S. P. Midkiff, and A. Raghunathan, "Inversion Engine: A Custom Hardware/Software/Algorithmic Solution for Fast MBIR Imaging," Phase II SBIR awarded to High Performance Imaging, L.L.C., 07/15/2015 to 07/14/2017, \$749,999.38.
153. C. A. Bouman, Principal Investigator, Co-Principal Investigators: S. P. Midkiff and A. Raganathan, "Jointly Optimized Software and Algorithms for Fast MBIR Imaging - Phase II", High Performance Imaging, LLC, (SBIR Phase II subcontract) 08/01/2015 to 7/31/2017, \$290,000.
154. Two year extension on MURI C. A. Bouman, Principal Investigator, Co-Principal Investigators: M. L. Comer, "Managing the Mosaic of Microstructure," Air Force MURI, subcontract through Carnegie Mellon University, 10/01/2015 - 09/30/2017 (Optional 24 month period of MURI), \$520,000.
155. C. A. Bouman, Principal Investigator, "CT Image Reconstruction and Processing for Air Transportation Security," subcontract through Northeastern University ALERT Department of Homeland Security Center, 07/01/2015 to 6/30/2016, \$75,000.
156. C. A. Bouman, Principal Investigator, "Model-Based Reconstruction for Ultrasonic Imaging of Wells in Geothermal Energy Systems: Phase III," ORNL via UT-BATTELLE LLC, 10/01/2015 to 09/30/2016, \$90,000.
157. C. A. Bouman, Principal Investigator, "Model-Based 3D Reconstruction for Electron Microscopy of Biomaterials and Nanomaterials," UES Inc., (Air Force Research Labs), 12/01/2015-11/30/2017, \$160,000.
158. C. A. Bouman, Principal Investigator, "Transitioning Advanced Imaging Technology to the Revolution System," General Electric Company, 9/01/2015 to 8/31/2016, \$117,864.
159. C. A. Bouman, Principal Investigator, "CT Image Reconstruction and Processing for Air Transportation Security," subcontract through Northeastern University ALERT Department of Homeland Security Center, 07/01/2016 to 6/30/2017, \$75,000.
160. C. A. Bouman, Principal Investigator, "The Use of Physics Modeling for Fusion and Inversion of Image Data at Multiple Acquisition Resolutions," UTC Inc., (Air Force Research Labs), 06/01/2016-06/30/2018, \$165,000.
161. Juan P Wachs, Principal Investigator, Co-Principal Investigator: C. A. Bouman, "A Proposal for Collaborative Research in Multi-Target Sense and Avoid for Small, Lightweight Unmanned Aerial Vehicles (UAVs)," 09/13/2016 - 09/13/2017, \$100,000.
162. C. A. Bouman, Principal Investigator, "Model-Based Iterative Cardiac Reconstruction in the Revolution System," General Electric Company, 9/01/2016 to 8/31/2017, \$120,699.
163. Dong Hye Ye, Principal Investigator, Co-Principal Investigator: C. A. Bouman, "Adaptive Automated Threat Recognition Algorithm for CT-based Object Detection Systems," ALERT Department of Homeland Security, 12/1/2016 to 3/15/2018, \$150,000.
164. Dong Hye Ye, Principal Investigator, Co-Principal Investigator: C. A. Bouman, "Automatic, Near-Real-Time Detection of Moving Objects in Video," Sandia Corporation, 9/2/2016 to 9/1/2017, \$70,000.
165. C. A. Bouman, Principal Investigator, "Development of Model Based Iterative Reconstruction Methods for Computed Tomography (CT)," Metals Affordability Initiative subcontracted through Northrop Grumman, 2016-11-29 to 2018-11-30, \$250,000.

166. Dong Hye Ye, Principal Investigator, Co-Principal Investigator: C. A. Bouman, "Automated Threat Recognition Algorithm for X-ray Scans with Metal Artifacts." Sandia Corporation, 1/16/2017 to 4/15/2017, \$20,000.
167. C. A. Bouman, Principal Investigator, "Attention Tracking and Anticipation," Lockheed Martin, 02/27/2017 to 10/27/2017, \$40,000.
168. C. A. Bouman, Principal Investigator, "Development of Software Tool Exploiting Novel Algorithms for Reconstructing High Quality Time Varying 3D Images from Limited Xray CT Data," Eli Lilly and Company, 07/01/2017 to 06/30/2018, \$89,996.39.
169. C. A. Bouman, Principal Investigator, "Analysis of Reconstruction and Model Uncertainty for TDLAS Computed Tomography," Air Force Research Labs, 07/01/2017 to 06/30/2018, \$79,912.07.
170. C. A. Bouman, Principal Investigator, "Attention Tracking and Anticipation," Lockheed Martin, 2/27/2017 to 10/27/2017, \$40,000.
171. Garth Simpson, Principal Investigator, Co-Principal Investigator: C. A. Bouman, "Sensitively Quantifying Trace Crystallinity and Crystal Form within Pharmaceutical Formulations," National Science Foundation, Award No. 1710475, 9/1/2017 to 9/1/2020, \$438,000.00.

Ph.D. Thesis Supervision Completed:

1. Thyagarajan Bala (formerly Balasubramanian) - 12/1992 - "Color Image Quantization for Display Applications" (Co-advised with Prof. J. P. Allebach)
2. B. W. Kolpatzik - 9/1993 - "Visually Optimized Image Display Using a Small Customizable Color Palette"
3. Daniel R. Tretter - 5/1994 "Stochastic Image Models for Algorithm Design"
4. Mark Wolski - 12/1994 - "Application of Vector Space Methods to the Colorimetric Problems of Scanning Filter Selection and Gamut Mismatch Compensation" (Co-advised with Prof. J. P. Allebach)
5. James Zhixin Chang - 5/1995 - "Sequential Structures for Vector Quantization and Functional Approximation" (Co-advised with Prof. J. P. Allebach)
6. Suhail S. Saquib - 5/1997 - "Edge-Preserving Models and Efficient Algorithms for Ill-Posed Inverse Problems in Image Processing"
7. C. Brian Atkins - 12/1998 - "Classification-Based Methods in Optimal Image Interpolation" (Co-advised with Prof. J. P. Allebach)
8. Jau-Yen Chen - 5/1999 - "Image Database Management Using Similarity Pyramids"
9. Hui Cheng - 7/1999 - "Document Image Segmentation and Compression"
10. Thomas Frese - 5/2001 - "Multiresolution Imaging Modeling and Bayesian Reconstruction Algorithms with Applications to Emission Tomography"
11. Sea Chen - 10/2002 - "Analysis of Functional Magnetic Resonance Imaging Data Using Signal Processing Techniques" (M.D./Ph.D. co-advised with Mark Lowe of IUSOM)
12. Zhen He - 12/2002 - "Digital Halftoning Algorithms for High-Quality and High-Speed Electro-Photographic Printing"
13. Adam Milstein - 7/2004 - "Imaging of Near-Infrared Fluorescence, Absorption, and Scatter in Turbid Media" (Co-advised with Prof. K. Webb)

14. Seungseok Oh - 5/2005 - "Nonlinear Multigrid Inversion Algorithms with Applications to Statistical Image Reconstruction" (Co-advised with Prof. K. Webb)
15. Mustafa E. Kamasak - 5/2005 - "Statistical Methods for Reconstruction of Parametric Images from Dynamic PET Data"
16. Guotong Feng - 12/2005 - "Methods of Color Document Compression, Processing, and Transmission"
17. Hasib A. Siddiqui - 8/2007 - "Training-Based Methods in Image Restoration"
18. Maribel Figuera Alegre - 7/2008 - "Memory-Efficient Algorithms for Raster Document Image Compression"
19. Animesh Khemka - 3/2009 - "Inverse Problems in Image Processing" (Co-advised with Prof. M. Bell)
20. Guangzhi Cao - 12/2009 - "Modeling and Processing of High Dimensional Signals and Systems using the Sparse Matrix Transform" (Co-advised with Prof. K. Webb)
21. Zhou Yu - 12/2009 - "Fast and High Quality Model Based Iterative Reconstruction for Computed Tomography"
22. Jianing Wei - 05/2010 - "Fast Space-Varying Convolution in Stray Light Reduction, Fast Matrix Vector Multiplication, and Activation Detection in fMRI Data Analysis" (Co-advised with Prof. J. P. Allebach and I. Pollak)
23. Hengzhou Ding - 05/2011 - "A Semi-Automatic Framework for Text Insertion and Replacement in Natural Images" (Co-advised with Prof. J. P. Allebach)
24. Tak-Shing Wong - 05/2011 - "Enhancement and Artifact Removal for Transform Coded Document Images" (Co-advised with Prof. I. Pollak)
25. Eri Haneda - 05/2011 - "Markov Random Field Model Based Text Segmentation and Image Post Processing of Complex Scanned Documents"
26. Leonardo R. Bachega - 08/2013 - "Analysis, Detection and Classification of Signals Using Scalar and Vector Sparse Matrix Transforms"
27. S. Jordan Kisner - 12/2013 - "Image Reconstruction for X-Ray Computed Tomography in Security Applications"
28. Yandong Guo - 08/2014 - "Statistical Model-Based Binary Document Image Coding, Reconstruction, and Analysis"
29. Singanallur V. Venkatakrishnan - 08/2014 - "Model-Based Iterative Reconstruction for Micro-Scale and Nano-Scale Imaging"
30. Pengchong Jin - 08/2015 - "Model-Based Image Processing Algorithms for CT Image Reconstruction, Artifact Reduction and Segmentation"
31. Ruoqiao Zhang - 11/2015 - "Advanced Statistical Modeling for Model-Based Iterative Reconstruction for Single-Energy and Dual-Energy X-Ray CT"
32. Muhammad Usman Sadiq - 11/2016 - "Model Based Iterative Reconstruction with Physics Based Priors" (Co-advised with Prof. Thomas M. Talavage)
33. Kadri Aditya Mohan - 12/2016 - "Modular Forward Models and Algorithms for Regularized Reconstruction of Time-Space Scalar and Vector Fields"
34. Suhas Sreehari - 04/2017 - "Advance Prior Modeling for Nano-Scale Imaging"
35. Casey J. Pellizzari - 08/2017 - "Optically-Coherent Sensing and Imaging: A Model-Based Approach"

36. Xiao Wang - 08/2017 - “High Performance Tomography” (Co-advised with Prof. Samuel Midkiff)

M.S. Thesis Supervision Completed:

1. C. Brian Atkins - 5/1994 - “Digital Halftoning for the Printing and Display of Images” (Co-advised with Prof. J. P. Allebach)
2. Mark Randall Olin - 9/2002 - “Scalable Re-Coding of Compressed Image Data Using Hierarchical Wavelet Domain Tiling”

M.S. and Ph.D. Thesis Students Currently Being Supervised:

Hani Almansouri	Ph.D.
Dilshan Godaliyadda	Ph.D.
Maliha Hossain	Ph.D.
Jing Li	Ph.D.
Soumendu Majee	Ph.D.
Zeeshan Nadir	Ph.D.
Capt. Casey Pellizzari	Ph.D.
Xiao Wang	Ph.D.
Haitao Xue	Ph.D.
Ben Foster	Ph.D.
Venkatesh Sridhar	Ph.D.
Thilo Balke	Ph.D.

Postdoctoral Scholars and Research Scientist Supervision:

Amirkoushyar Ziabari	Postdoctoral Scholar
Dong Hye Ye	Research Scientist

Courses Developed:

EE 637	Digital Image Processing I
EE 641	Model Based Image and Signal Processing
EE 438L	Digital Signal Processing with Applications Laboratory

Courses “In Charge of”:

EE 637	Digital Image Processing I
EE 641	Model Based Image and Signal Processing

Research Book Contributions and Books Published:

1. E. Delp, J. Allebach, and C. Bouman, “Digital Image Processing,” in *The Electrical Engineering Handbook*, edited by Richard C. Dorf, pp. 329-344, CRC Press, Inc, Boca Raton, 1993.
2. E. Delp, J. Allebach, and C. Bouman, “Digital Image Processing,” in *The Electrical Engineering Handbook*, edited by Richard C. Dorf, pp. 391-405, CRC Press, Inc, Boca Raton, 1997.
3. T. Frese, C. A. Bouman, and K. Sauer, “Multiscale Bayesian Methods for Discrete Tomography,” *Discrete Tomography: Foundations, Algorithms and Applications*, edited by Gabor T. Herman and Attila Kuba, pp. 237-261, Birkhauser Boston, Cambridge, MA, 1999.
4. D. Tretter, N. Memon, and C. Bouman, “Multispectral Image Coding,” *The Image and Video Processing Handbook*, edited by Alan Bovik, pp. 539-554, Academic Press, San Diego, 2000.

Serial Journal Articles:

1. Jeffrey H. Fischer, John H. Cafarella, Duane R. Arsenault, Gerard T. Flynn, and Charles A. Bouman, “Wideband Packet Radio Technology,” (**invited paper**), *Proc. of IEEE*, vol. 75, no. 1, pp. 100-115, Jan. 1987.

2. Jeffery H. Fischer, John H. Cafarella, Charles A. Bouman, Gerard T. Flynn, Victor S. Dolat, and Rene Boisvert, "Wideband and Packet Radio for Multipath Environments," *IEEE Trans. on Comm.*, vol. 36, no. 5, pp. 564-576, May 1988.
3. Charles Bouman and Bede Liu, "Multiple Resolution Segmentation of Textured Images," *IEEE Trans. on Pattern Anal. and Mach. Intell.*, vol. 13, no. 2, pp. 99-113, Feb. 1991.
4. Michael Orchard and Charles A. Bouman, "Color Quantization of Images," *IEEE Trans. on Sig. Proc.*, vol. 39, no. 12, pp. 2677-2690, Dec. 1991.
5. Bernd Kolpatzik and Charles A. Bouman, "Optimized Error Diffusion for Image Display," *Journal of Electronic Imaging*, vol. 1, no. 3, pp. 277-292, July 1992.
6. Ken Sauer, and Charles A. Bouman, "Bayesian Estimation of Transmission Tomograms Using Segmentation Based Optimization," *IEEE Trans. on Nuclear Science*, vol. 39, no. 4, pp. 1144-1152, Aug. 1992.
7. Ken Sauer and Charles A. Bouman, "A Local Update Strategy for Iterative Reconstruction from Projections," *IEEE Trans. on Sig. Proc.*, vol. 41, no. 2, pp. 534-548, Feb. 1993.
8. Jisang Yoo, Charles A. Bouman, Edward J. Delp, and Edward J. Coyle, "The Nonlinear Prefiltering and Difference of Estimates Approaches to Edge Detection: Applications of Stack Filters," *Computer Vision Graphics and Image Processing*, vol. 55, no. 2, pp. 140-159, March 1993.
9. Charles Bouman and Ken Sauer, "A Generalized Gaussian Image Model for Edge-Preserving MAP Estimation," *IEEE Trans. on Image Processing*, vol. 2, no. 3, pp. 296-310, July 1993.
10. Raja Balasubramanian, Charles A. Bouman, and Jan P. Allebach, "Sequential Scalar Quantization of Color Images," *Journal of Electronic Imaging*, pp. 45-59, vol. 3, no. 1, Jan. 1994.
11. Charles A. Bouman and Michael Shapiro, "A Multiscale Random Field Model for Bayesian Image Segmentation," *IEEE Trans. on Image Processing*, vol. 3, no. 2, pp. 162-177, March 1994.
12. Raja Balasubramanian, Jan P. Allebach, and Charles A. Bouman, "Color Image Quantization Using a Fast Binary Splitting Technique," *Journal of the Optical Society of America A*, vol. 11, pp. 2777-2786, November 1994.
13. Dan Tretter and Charles A. Bouman, "Optimal Transforms for Multispectral and Multilayer Image Coding," *IEEE Trans. on Image Processing*, vol. 4, no. 9, pp. 296-308, March 1995.
14. Raja Balasubramanian, Charles A. Bouman, and Jan P. Allebach, "Sequential Scalar Quantization of Vectors: An Analysis," *IEEE Trans. on Image Processing*, vol. 4, no. 3, pp. 1282-1295, September 1995.
15. Bernd Kolpatzik and Charles A. Bouman, "Optimal Universal Color Palette Design for Error Diffusion," *Journal of Electronic Imaging*, vol. 4, no. 2, pp. 131-143, April 1995.
16. Dan Tretter, Charles A. Bouman, Khalid Khawaja and Anthony Maciejewski, "A Multiscale Stochastic Image Model for Automated Inspection," *IEEE Trans. on Image Processing*, vol. 4, no. 12, pp. 1641-1654, December 1995.
17. Mark Wolski, Charles A. Bouman, Jan P. Allebach, and Eric Walowit, "Optimization of Sensor Response Functions for Colorimetry of Reflective and Emissive Objects," *IEEE Trans. on Image Processing*, vol. 5, no. 3, pp. 507-517, March 1996.
18. Charles A. Bouman and Ken Sauer, "A Unified Approach to Statistical Tomography Using Coordinate Descent Optimization," *IEEE Trans. on Image Processing*, vol. 5, no. 3, pp. 480-492, March 1996.
19. Michael D. Zoltowski, Jan P. Allebach, and Charles A. Bouman, " 'Digital Signal Processing With Applications: A New and Successful Approach to Undergraduate DSP Education,' " *IEEE Trans. on Education*, vol 39, no. 2, pp. 120-126, May 1996.

20. Khalid W. Khawaja, Anthony A. Maciejewski, Daniel Tretter, and Charles A. Bouman, "A Multiscale Assembly Inspection Algorithm," *IEEE Robotics and Automation Magazine*, vol. 3, no. 2, pp. 15-22, June 1996.
21. James Z. Chang, J. P. Allebach, and C. A. Bouman, "Sequential Linear Interpolation of Multidimensional Functions," *IEEE Trans. on Image Processing*, vol. 6, no. 9, pp. 1231-1245, Sept. 1997.
22. Jisang Yoo, Edward J. Coyle, and Charles A. Bouman, "Dual Stack Filters and the Modified Difference of Estimates Approach to Edge Detection," *IEEE Trans. on Image Processing*, vol. 6, no. 12, pp. 1634-1645, Dec. 1997.
23. Suhail S. Saquib, Charles A. Bouman, and Ken Sauer, "ML Parameter Estimation for Markov Random Fields, with Applications to Bayesian Tomography," *IEEE Trans. on Image Processing*, vol. 7, no. 7, pp. 1029-1044, July 1998.
24. Jong Chul Ye, Kevin J. Webb, Charles A. Bouman, and Rick P. Millane, "Optical Diffusion Tomography Using Iterative Coordinate Descent Optimization in a Bayesian Framework," *Journal of the Optical Society of America A*, vol. 16, no. 10, pp. 2400-2412, Oct. 1999.
25. Jau-Yuen Chen, Charles A. Bouman, and John C. Dalton, "Hierarchical Browsing and Search of Large Image Databases," *IEEE Trans. on Image Processing*, vol. 9, no. 3, pp. 442-455, March 2000.
26. C. Brian Atkins, Jan P. Allebach, and Charles A. Bouman, "Halftone Postprocessing for Improved Rendition of Highlights and Shadows," *Journal of Electronic Imaging*, pp. 151-158, vol. 9, no. 2, April 2000.
27. Jean-Baptiste Thibault, Ken Sauer, and Charles A. Bouman, "Newton-Style Optimization for Emission Tomographic Estimation," *Journal of Electronic Imaging*, pp. 269-282, vol. 9, no. 3, July 2000.
28. Jun Zheng, Suhail Saquib, Ken Sauer, and Charles A. Bouman, "Parallelizable Bayesian Tomography Algorithms with Rapid, Guaranteed Convergence," *IEEE Trans. on Image Processing*, pp. 1745-1759, vol. 9, no. 10, Oct. 2000.
29. Hui Cheng and Charles A. Bouman, "Multiscale Bayesian Segmentation Using a Trainable Context Model," *IEEE Trans. on Image Processing*, pp. 511-525, vol. 10, no. 4, April 2001.
30. Hui Cheng and Charles A. Bouman, "Document Compression Using Rate-Distortion Optimized Segmentation," *Journal of Electronic Imaging*, pp. 460-474, vol. 10, no. 2, April 2001.
31. Jong Chul Ye, Charles A. Bouman, Kevin J. Webb, and Rick P. Millane, "Nonlinear Multigrid Algorithms for Bayesian Optical Diffusion Tomography," *IEEE Trans. on Image Processing*, pp. 909-922, vol. 10, no. 6, June 2001.
32. Adam B. Milstein, Seungseok Oh, Jeff S. Reynolds, Kevin J. Webb, C. A. Bouman, and R. P. Millane, "Three-dimensional Bayesian Optical Diffusion Imaging with Experimental Data," *Optics Letters*, pp. 95-97, vol. 27, no. 2, Jan. 2002.
33. Blanca I. Andía, Ken D. Sauer and Charles A. Bouman, "Nonlinear Backprojection for Tomographic Reconstruction," *IEEE Trans. on Nuclear Science*, vol. 49, no. 1, pp. 61-68, Feb. 2002.
34. Tom Frese, Charles A. Bouman, and Ken Sauer, "Adaptive Wavelet Graph Model for Bayesian Tomographic Reconstructions," *IEEE Trans. on Image Processing*, pp. 756-770, vol. 11, July 2002.
35. Seungseok Oh, Adam B. Milstein, Rick P. Millane, Charles A. Bouman, and Kevin J. Webb, "Source-detector Calibration in Three-Dimensional Bayesian Optical Diffusion Tomography," *Journal of the Optical Society of America A* vol. 19, no. 10, pp. 1983-1993, Oct. 2002.
36. Thomas Frese, Ned C. Rouze, Charles A. Bouman, Ken Sauer, and Gary D. Hutchins, "Quantitative Comparison of FBP, EM, and Bayesian Reconstruction Algorithms, Including the Impact of Accurate System Modeling, for the IndyPET Scanner," *IEEE Transactions on Medical Imaging*, pp. 258-276, vol. 22, no. 2, Feb. 2003.

37. Adam B. Milstein, Seungseok Oh, Kevin J. Webb, and Charles A. Bouman, Quan Zhang, David A. Boas, and R. P. Millane, "Fluorescence Optical Diffusion Tomography," *Applied Optics*, pp. 3081-3094, vol. 42, no. 16, June 2003.
38. A. Alessio, K. Sauer, and C. A. Bouman, "MAP Reconstruction from Spatially Correlated PET Data," *IEEE Trans. on Nuclear Science*, pp. 1445-1451, vol. 50, no. 5, Oct. 2003.
39. Cuneyt Taskiran, Jau-Yuen Chen, Alberto Albiol, Luis Torres, Charles A. Bouman, and Edward J. Delp, "ViBE: A Compressed Video Database Structured for Active Browsing and Search," *IEEE Transactions on Multimedia*, pp. 103-118, vol. 6, no. 1, Feb. 2004.
40. Sea Chen, Charles A. Bouman, and Mark J. Lowe, "Clustered Components Analysis for Functional MRI," *IEEE Transactions on Medical Imaging*, pp. 85-98, vol. 23, no. 1, Jan. 2004.
41. Zhen He and Charles A. Bouman, "AM/FM Halftoning: Digital Halftoning Through Simultaneous Modulation of Dot Size and Dot Density," *Journal of Electronic Imaging*, pp. 286-302, vol. 13, no. 2, April 2004.
42. Adam B. Milstein, Jonathan J. Stott, Seungseok Oh, David A. Boas, R. P. Millane, Charles A. Bouman, and Kevin J. Webb, "Fluorescence Optical Diffusion Tomography using Multiple-Frequency Data," *Journal of the Optical Society of America A*, pp. 1035-1049, vol. 21, no. 6, June 2004.
43. Seungseok Oh, Adam B. Milstein, Charles A. Bouman, and Kevin J. Webb, "A General Framework for Nonlinear Multigrid Inversion," *IEEE Trans. on Image Processing*, pp. 125-140, vol. 14, no. 1, Jan. 2005.
44. Adam B. Milstein, Michael D. Kennedy, Philip S. Low, Charles A. Bouman, and Kevin J. Webb, "Detection and Localization of a Fluorescing Mouse Tumor in a Turbid Medium," *Applied Optics*, pp. 2300-2310, vol. 44, no. 12, April 2005.
45. M. E. Kamasak, C. A. Bouman, E. D. Morris and K. Sauer, "Direct Reconstruction of Kinetic Parameter Images from Dynamic PET Data," *IEEE Trans. on Medical Imaging*, pp. 636-650, vol. 24, no. 5, May 2005.
46. Adam B. Milstein, Kevin J. Webb, and Charles A. Bouman, "Estimation of Kinetic Model Parameters in Fluorescence Optical Diffusion Tomography," *Journal of the Optical Society of America A*, pp. 1357-1368, vol. 22, no. 7, July 2005.
47. Yan Huang, Ilya Pollak, Charles A. Bouman, and Minh N. Do, "Best Basis Search in Lapped Dictionaries," *IEEE Trans. on Signal Processing*, pp. 651-664, vol. 54, no. 2, Feb. 2006.
48. Animesh Khemka, Charles A. Bouman, and Mark R. Bell, "Inverse Problems in Atmospheric Dispersion with Randomly Scattered Sensors," *Digital Signal Processing*, pp. 638-651, vol. 16, 2006.
49. Yan Huang, Ilya Pollak, Minh N. Do, and Charles A. Bouman, "Fast Search for Best Representations in Multitree Dictionaries," *IEEE Trans. on Image Processing*, pp. 1779-1793, vol. 15, no. 7, July 2006.
50. Seungseok Oh, Charles A. Bouman, and Kevin J. Webb, "Multigrid Tomographic Inversion with Variable Resolution Data and Image Spaces," *IEEE Trans. on Image Processing*, pp. 2805-2819, vol. 15, no. 9, Sept. 2006.
51. Wiley Wang, Ilya Pollak, Tak-Shing Wong, Charles A. Bouman, Mary P. Harper, and Jeff Siskind, "Hierarchical Stochastic Image Grammars for Classification and Segmentation," *IEEE Trans. on Image Processing*, pp. 3033-3052, vol. 15, no. 10, October 2006.
52. Guotong Feng and Charles A. Bouman, "High Quality MRC Document Coding," *IEEE Trans. on Image Processing*, pp. 3152-3169, vol. 15, no. 10, October 2006.

53. Hasib Siddiqui and Charles A. Bouman, "Training-based Descreening," *IEEE Trans. on Image Processing*, pp. 789-802, vol. 16, no. 3, March 2007.
54. J. M. Siskind, J. Sherman, Jr., I. Pollak, M. P. Harper, and C. A. Bouman, "Spatial Random Tree Grammars for Modeling Hierarchical Structure in Images with Regions of Arbitrary Shape," *IEEE Trans. on Pattern Anal. and Mach. Intell.* pp. 1504-1519, vol. 29, no. 9, September 2007.
55. C. C. Constantinescu, C. A. Bouman, and E. D. Morris, "Nonparametric Extraction of Transient Changes in Neurotransmitter Concentration from Dynamic PET Data," *IEEE Trans. on Medical Imaging*, pp. 359-373, vol. 26, no. 3, March 2007.
56. Jean-Baptiste Thibault, Ken Sauer, Charles Bouman, and Jiang Hsieh, "A Three-Dimensional Statistical Approach to Improved Image Quality for Multi-Slice Helical CT," *Medical Physics*, pp. 4526-4544, vol. 34, no. 11, November 2007.
57. Guanzhi Cao, Vaibhav Gaid, Charles A. Bouman, and Kevin J. Webb, "Localization of an Absorbing Inhomogeneity in a Scattering Medium Based on an Optical Diffusion Model," *Optics Letters*, pp. 3026-3028, vol. 32, no. 20, October 2007.
58. C. C. Constantinescu, K. K. Yoder, D. A. Kareken, C. A. Bouman, S. J. O'Connor, M. D. Normandin, and E. D. Morris, "Estimation from PET data of transient changes in dopamine concentration induced by alcohol: support for a non-parametric signal estimation method," *Physics in Medicine and Biology*, pp. 1353-1367, vol. 53, February 2008.
59. Santae Ahn, Abhijit J. Chaudhari, Felix Darvas, Charles A. Bouman, and Richard M. Leahy, "Fast Iterative Image Reconstruction Methods for Fully 3D Multispectral Bioluminescence Tomography," *Physics in Medicine and Biology*, pp. 3921-3942, vol. 53, no. 14, July 2008.
60. Xiaogang Dong, Kai-Lung Hua, Peter Majewicz, Gordon McNutt, Charles A. Bouman, Jan P. Allebach, and Ilya Pollak, "Document Page Classification Algorithms in Low-End Copy Pipeline," *Journal of Electronic Imaging*, p 043011, vol. 17, no. 4, October 2008.
61. Hasib Siddiqui and Charles A. Bouman, "Hierarchical Color Correction for Camera Cell Phone Images," *IEEE Trans. on Image Processing*, pp. 2138-2155, vol. 17, no. 11, November 2008.
62. Vaibhav Gaid, Kevin J. Webb, Sumith Kularatne, and Charles A. Bouman, "Towards in Vivo Imaging of Intramolecular Fluorescence Resonance Energy Transfer Parameters," *Journal of the Optical Society of America A (Optics, Image Science and Vision)*, pp. 1805-1813, vol. 26, no. 8, August 2009.
63. Guangzhi Cao, Charles A. Bouman, and Kevin J. Webb, "Non-Iterative MAP Reconstruction Using Sparse Matrix Representations" *IEEE Transactions on Image Processing*, pp. 2085-2099, vol. 18, no. 9, September 2009.
64. Tak-Shing Wong, Charles A. Bouman, Ilya Pollak, and Zhigang Fan, "A Document Image Model and Estimation Algorithm for Optimized JPEG Decompression," *IEEE Transactions on Image Processing*, pp. 2518-2535, vol. 18, no. 11, November 2009.
65. Hasib Siddiqui, Mireille Boutin, and Charles A. Bouman, "Hardware-Friendly Descreening," *IEEE Trans. on Image Processing*, pp. 746-757, vol. 19, no. 3, March 2010.
66. S. Hariharan, L. R. Bachega, N. B. Shroff and C. A. Bouman, "Communication Efficient Signal Detection in Correlated Clutter for Wireless Sensor Networks," in Proceedings of the *IEEE Asilomar Conference on Signals Systems and Computers*, 2010.
67. Zhou Yu, Jean-Baptiste Thibault, Charles A. Bouman, Ken D. Sauer, and Jiang Hsieh, "Fast Model-Based X-ray CT Reconstruction Using Spatially Non-Homogeneous ICD Optimization," *IEEE Trans. on Image Processing*, vol. 20, no. 1, pp. 161-175, January 2011.

68. Guangzhi Cao, Leonardo R. Bachega, and Charles A. Bouman, "The Sparse Matrix Transform for Covariance Estimation and Analysis of High Dimensional Signals," pp. 625-640, vol. 20, no. 3, *IEEE Trans. on Image Processing*, March 2011.
69. Eri Haneda and Charles A. Bouman, "Text Segmentation for MRC Document Compression," vol. 20, no. 6, *IEEE Trans. on Image Processing*, June 2011.
70. James Theiler, Gaungzhi Cao, Leonardo R. Bachega, Charles A. Bouman, "Sparse Matrix Transform for Hyperspectral Image Processing," vol. 5, no. 3, *IEEE Selected Topics in Signal Process*, June 2011.
71. Tak-Shing Wong, Charles A. Bouman, and Ilya Pollak, "Image Enhancement Using the Hypothesis Selection Filter: Theory and Application to JPEG Decoding," *IEEE Transactions on Image Processing*, pp. 898-913, vol. 22, no. 3, March 2013.
72. Jiang Hsieh, Brian Nett, Zhou Yu, Ken Sauer Jean-Baptiste Thibault, and Charles A. Bouman, "Recent Advances in CT Image Reconstruction," *Current Radiology Reports*, DOI 10.1007/s40134-012-0003-7, January 2013.
73. S. Venkat V. Venkatakrishnan, Lawrence F. Drummy, Michael Jackson, Marc De Graef, Jeff Simmons, and Charles A. Bouman, "A Model Based Iterative Reconstruction Algorithm For High Angle Annular Dark Field - Scanning Transmission Electron Microscope (HAADF-STEM) Tomography," *IEEE Transactions on Image Processing*, pp. 4532-4544, vol. 22, no. 1, November 2013.
74. Ruoqiao Zhang, Jean-Baptiste Thibault, Charles A. Bouman, Ken D. Sauer, and Jiang Hsieh, "Model-Based Iterative Reconstruction for Dual-Energy X-Ray CT using a Joint Quadratic Likelihood Model," *IEEE Trans. on Medical Imaging*, pp. 117-134, vol. 33, no. 1, January 2014.
75. Mustafa E. Kamasak, Bradley T. Christian, Charles A. Bouman, and Evan D. Morris, "Quality and Precision of Parametric Images Created from PET Sinogram Data by Direct Reconstruction: Proof of Concept," *IEEE Trans. on Medical Imaging*, pp. 695-707, vol. 33, no. 3, March 2014.
76. Jianing Wei, Charles A. Bouman, and Jan P. Allebach, "Fast Space-Varying Convolution Using Matrix Source Coding with Applications to Camera Stray Light Reduction," *IEEE Transactions on Image Processing*, vol. 23, no. 5, p 1965-1979, May 2014.
77. S. Z. Sullivan, R. D. Muir, J. A. Newman, M. S. Carlsen, S. Sreehari, C. Doerge, N. J. Begue, R. M. Everly, C. A. Bouman, G. J. Simpson, "High Frame-Rate Multichannel Bean-Scanning Microscopy Based on Lissajous Trajectories," *Optics Express*, vol. 22, no. 20, October 6, 2014.
78. S. V. Venkatakrishnan, L. F. Drummy, M. Jackson, M. De Graef, J. Simmons, and C. A. Bouman, "Model-Based Iterative Reconstruction for Bright Field Electron Tomography," *IEEE Transactions on Computational Imaging*, vol. 1, no. 1, pp. 1 - 15, March 2015.
79. K. Aditya Mohan, S. V. Venkatakrishnan, J. W. Gibbs, E. B. Gulsoy, X. Xiao, M. De Graef, P. W. Voorhees, and C. A. Bouman, "TIMBER: A Method for Time-Space Reconstruction from Interlaced Views," *IEEE Transactions on Computational Imaging*, vol. 1, no. 2, pp. 96 - 111, June 2015.
80. J. W. Gibbs, K. Aditya Mohan, E. B. Gulsoy, A. J. Shahani, X. Xiao, C. A. Bouman, M. De Graef, and P. W. Voorhees, "The Three-Dimensional Morphology of Growing Dendrites," *Scientific Reports*, no. 5, article number 22824, July 2015.
81. Pengchong Jin, Charles A. Bouman, and Ken D. Sauer, "A Model-Based Image Reconstruction Algorithm with Simultaneous Beam Hardening Correction for X-Ray CT," *IEEE Transactions on Computational Imaging*, vol. 1, no. 3, p 200-16, Sept. 2015.
82. Leonardo R. Bachega, Srikanth Hariharan, Charles A. Bouman, and Ness Shroff, "Distributed Signal Decorrelation and Detection in Sensor Networks Using the Vector Sparse Matrix Transform," *IEEE Transactions on Image Processing*, vol. 24, no. 12, pp. 6011-24, Dec. 2015.

83. S. V. Venkatakrisnan, L. F. Drummy, M. A. Jackson, C. A. Bouman, J. P. Simmons, and M. De Graef, "A Phantom-Based Forward Projection Approach in Support of Model-Based Iterative Reconstructions for HAADF-STEM Tomography," *Ultramicroscopy*, vol. 160, pp. 7-17, January 2016.
84. Ruoqiao Zhang, Dong Hye Ye, Debashish Pal, Jean-Baptiste Thibault, Ken D. Sauer, and Charles A. Bouman, "A Gaussian Mixture MRF for Model-Based Iterative Reconstruction with Applications to Low-Dose X-ray CT," *IEEE Transactions on Computational Imaging*, vol. 2, no. 3, Sept. 2016.
85. Junshi Liu, Swagath Venkataramani, S. Venkat Venkatakrisnan, Yun Pan, Charles A. Bouman, and Anand Rangunathan, "EMBIRA: An Accelerator for Model-Based Iterative Reconstruction," *IEEE Trans. on Very Large Scale Integration (VLSI) Systems*, vol. 24, no. 11, pp. 3243-56, Nov. 2016.
86. Suhas Sreehari, S. Venkat Venkatakrisnan, Brendt Wohlberg, Gregory T. Buzzard, Lawrence F. Drummy, Jeffrey P. Simmons, and Charles A. Bouman, "Plug-and-Play Priors for Bright Field Electron Tomography and Sparse Interpolation," *IEEE Transactions on Computational Imaging*, vol. 2, no. 4, pp. 408-423, December 2016.
87. Zhiqian Chang, Ruoqiao Zhang, Jean-Baptiste Thibault, Debashish Pal, Lin Fu, Ken Sauer, and Charles Bouman, "Modeling and Pre-Treatment of Photon-Starved CT Data for Iterative Reconstruction," *IEEE Trans. on Medical Imaging*, vol. 36, no. 1, Jan. 2017.
88. SungHwan Hwang, Chang Wan Han, Singanallur Venkatakrisnan, Charles A Bouman, and Volkan Oralkan, "Towards the Low-Dose Characterization of Beam Sensitive Nanostructures via Implementation of Sparse Image Acquisition in Scanning Transmission Electron Microscopy," *Measurement Science and Technology*, vol. 28, no. 4, February 2017.
89. Azhad U. Chowdhury, Dong Hye Ye, Zhengtian Song, Shijie Zhang, Hartmut G. Hedderich, Babita Mallick, Satyanarayana Thirunahari, Srividya Ramakrishnan, Atanu Sengupta, Ellen J. Gualtieri, Charles A. Bouman, and Garth J. Simpson, "Second Harmonic Generation Guided Raman Spectroscopy for Sensitive Detection of Polymorph Transitions," *Analytical Chemistry*, vol. 89, no. 11, pp. 5958-5965, May 2017.
90. Nicole M. Scarborough, G. M. Dilshan P. Godaliyadda, Dong Hye Ye, David J. Kissick, Zhang, Justin A. Newman, Michael J. Sheedlo, Azhad Chowdhury, Robert F. Fischetti, Chittaranjan Das, Gregory T. Buzzard, Charles A. Bouman, and Garth J. Simpson, "Dynamic X-ray Diffraction Sampling for Protein Crystal Positioning," *Journal of Synchrotron Radiation*, vol. 24, pp. 188-195, 2017.
91. K. C. Prabhat, K. Aditya Mohan, Charudatta Phatak, Charles Bouman and Marc De Graef, "3D Reconstruction of the Magnetic Vector Potential using Model Based Iterative Reconstruction," *Ultramicroscopy*, vol. 182, pp. 131-144, July 2017.
92. Casey J. Pellizzari, Russell Trahan, Hanying Zhou, Skip Williams, Stacie E. Williams, Bijan Nemati, Michael Shao, and Charles A. Bouman, "Synthetic Aperture LADAR: A Model-Based Approach," to appear in *IEEE Transactions on Computational Imaging*.
93. Zeeshan Nadir, Michael S. Brown, Mary L. Comer, and Charles A. Bouman, "A Model-Based Iterative Reconstruction Approach to Tunable Diode Laser Absorption Tomography," to appear in *IEEE Transactions on Computational Imaging*.
94. Casey J. Pellizzari, Russell Trahan, Hangying Zhou, Skip Williams, Stacie E. Williams, Bijan Nemati, Michael Shao, and Charles A. Bouman, "Optically-Coherent Image Formation and Denoising Using Plug and Play Inversion Framework," to appear in *Applied Optics*.
95. Casey J. Pellizzari, Mark F. Spencer, and Charles A. Bouman, "Phase-Error Estimation and Image Reconstruction from Digital-Holography Data using a Bayesian Framework, to appear in *The Journal of the Optical Society of America A (JOSA)*.

Highly Selective Conference Publications:

1. Guangzhi Cao and Charles A. Bouman, "Covariance Estimation for High Dimensional Data Vectors Using the Sparse Matrix Transform," *Proceedings of Neural Information Processing Systems Conference*, December, 2008
2. Xiao Wang, Amit Sabne, Sherman Kisner, Anand Raghunathan, Charles Bouman, and Samuel Midkiff, "High Performance Model Based Image Reconstruction," *21st ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP '16)*, March 12-16, 2016.
3. Amit Sabne, Xiao Wang, Sherman Kisner, Charles Bouman, Anand Raghunathan, and Samuel Midkiff, "Model-based Iterative CT Image Reconstruction on GPUs," *21st ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP '167)*, February 4-8, 2017.
4. Yandong Guo, Cheng Lu, Jan P. Allebach, and Charles A. Bouman, "Model-based Iterative Restoration for Binary Document Image Compression with Dictionary Learning," *Computer Vision and Pattern Recognition 2017 (CVPR 2017)*, July 22, 2017.
5. Xiao Wang, Amit Sabne, Putt Sakdhnagool, Sherman J. Kisner, Charles A. Bouman, and Samuel P. Midkiff, "Massively Parallel 3D Image Reconstruction," *2017 Supercomputing Conference (SC17)*, ACM, November 13-16, 2017. (Selected as one of three finalists for 2017 ACM Gordon Bell Prize.)

Serial Journal Short Notes:

1. Mary Comer, Charles A. Bouman, Marc De Graef, and Jeff P. Simmons, "Bayesian Methods for Image Segmentation," *Journal of the Minerals, Metals and Materials Society*, pp. 55-57, vol. 63, no. 7, July 2011.

Serial Journal Abstracts:

1. Charles A. Bouman, "The Golden Age of Imaging," *IEEE Transactions on Image Processing*, v 17, n 4, April 2008, p 441-442.

Conference Proceedings and Presentations:

1. I. Yao, E. M. Hauser, C. A. Bouman, G. T. Flynn and J. H. Cafarella, "Wideband Radar Signal Processor Based on Saw Convolver," *Proc. of IEEE Ultrasonics Symp.*, vol. 1, pp. 132-137, Dallas, Texas, Nov. 14-16, 1984.
2. C. Bouman, "An Adaptive Clutter Canceler for Radars Using Nonrepeating Pseudonoise Waveforms," *Proc. of Tri-Service Radar Symp.* (published in classified session), Colorado Springs, CO, June 18-20, 1985.
3. C. J. Fischer, J. Cafarella, G. Flynn, C. Bouman, D. Arsenault, J. Kurtze, and R. Boisvert, "A Wideband Packet Radio Based on Hybrid Analog/Digital Signal Processing and Layered Architecture," *Proc. of MILCOM '85* (published in classified session), Boston, MA, Oct. 20-23, 1985.
4. C. Bouman and B. Liu, "Segmentation of Textured Images Using a Multiple Resolution Approach," *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, vol. 2, pp. 1124-1127, New York, NY, April 11-14, 1988.
5. C. Bouman and B. Liu, "A Multiple Resolution Approach to Regularization," *Proc. of SPIE Conf. on Visual Comm. and Image Proc.*, vol. 1001, pp. 512-520, Cambridge, MA, Nov. 9-11, 1988.
6. C. Bouman, and M. Orchard, "Color Image Display with a Limited Palette Size," *Proc. of SPIE Conf. on Visual Comm. and Image Proc.*, vol. 1199, pp. 522-533, Philadelphia, PA, Nov. 8-10, 1989.
7. C. Bouman and B. Liu, "Unsupervised Estimation of Image Textures Using an Autoregressive Model," *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, vol. 4, pp. 2141-2145, Albuquerque, NM, April 3-6, 1990.

8. J. Yoo, C.A. Bouman, E.J. Delp, and E.J. Coyle, "Intensity Edge Detection with Stack Filters," *Proc. of SPIE/IS&T Conf. on Nonlinear Image Processing II*, vol. 1451, pp. 58-69, San Jose, CA, Feb. 28 - March 1, 1991.
9. C. Bouman and K. Sauer, "An Edge-Preserving Method for Image Reconstruction from Integral Projections," *Conference on Information Sciences and Systems*, pp. 382-387, The Johns Hopkins University, Baltimore, MD, March 20-22, 1991.
10. K. Sauer and C. Bouman, "Bayesian Estimation from Projections with Low Photon Dosages," *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, vol. 4, pp. 2593-2596, Toronto, Canada, May 14-17, 1991.
11. C. A. Bouman and K. Sauer, "Generalized Gaussian Markov Random Fields for Tomographic Estimation," *Proceedings of the Seventh Workshop on Multidimensional Signal Processing*, p. 6.10, Lake Placid, NY, Sept. 23-25, 1991.
12. C. J. Yoo, C. A. Bouman, E. J. Delp, E. J. Coyle "Intensity Edge Detection with Stack Filters," *Proceedings of the Seventh Workshop on Multidimensional Signal Processing*, p. 9.9, Lake Placid, NY, Sept. 23-25, 1991.
13. K. Sauer and C. Bouman, "Bayesian Estimation of Transmission Tomograms Using Local Optimization Operations," *Proc. IEEE 1991 Nucl. Sci. Symp. and Med. Im. Conf.*, vol. 3, pp. 2089-2093, Sante Fe, New Mexico, Nov. 5-9, 1991.
14. B. W. Kolpatzik and C. A. Bouman, "Optimized Error Diffusion Based on a Human Visual Model," *Proc. of SPIE/IS&T Conf. on Human Vision, Visual Processing, and Digital Display*, pp. 152-164, vol. 1666, San Jose, California, Feb. 10-13, 1992.
15. R. Balasubramanian, C. A. Bouman, and J. P. Allebach, "New Results in Color Image Quantization," *Proc. of SPIE/IS&T Conf. on Image Processing Algorithms and Techniques III*, vol. 1657, pp. 289-303, San Jose, California, Feb. 10-13, 1992.
16. C. Bouman and M. Shapiro, "Multispectral Image Segmentation using a Multiscale Image Model," *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, vol. 3, pp. 565-568, San Francisco, California, March 23-26, 1992.
17. C. Bouman and K. Sauer, "Nonlinear Multigrid Methods of Optimization in Bayesian Tomographic Image Reconstruction," *Proc. of SPIE Conf. on Neural and Stochastic Methods in Image and Signal Processing*, vol. 1766, pp. 296-306, San Diego, California, July 19-24, 1992.
18. T. J. Flohr, B. W. Kolpatzik, R. Balasubramanian, D. A. Carrara, C. A. Bouman, and J. P. Allebach, "Model Based Color Image Quantization," *Proc. of SPIE/IS&T Conf. on Human Vision, Visual Processing, and Digital Display*, vol. 1993, pp. 270-281, San Jose, CA, Jan. 31-Feb. 4, 1993.
19. C. Bouman and K. Sauer, "Fast Numerical Methods for Emission and Transmission Tomographic Reconstruction," (**invited paper**), *Proceedings of the Twenty-seventh Annual Conference on Information Sciences and Systems*, pp. 611-616, The Johns Hopkins University, Baltimore, MD, March, 1993.
20. D. Tretter and C. Bouman, "A Model-Based Approach to Multispectral Image Coding," *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, vol. 5, pp. 361-364, Minneapolis, Minnesota, April 27-30, 1993.
21. B. Kolpatzik and C. Bouman, "Color Palette Design for Error Diffusion" *Proc. of IS&T's 46th Annual Conference*, pp. 109-112, Cambridge, MA, May 9-14, 1993.
22. R. Balasubramanian, C. A. Bouman, and J. P. Allebach, "Sequential Scalar Quantization of Color Images" *Proc. of IS&T's 46th Annual Conference*, pp. 97-101, Cambridge, MA, May 9-14, 1993.

23. R. Balasubramanian, C. A. Bouman, and J. P. Allebach, "Sequential Scalar Quantization of Vectors," *Proc. of the Thirty-First Annual Allerton Conference on Communications, Control and Computers*, pp. 717-726, Monticello, Illinois, Sept. 29 - Oct. 1, 1993.
24. D. R. Tretter and C. A. Bouman, "Multiscale Stochastic Approach to Object Detection," *Proc. of SPIE Conf. on Visual Comm. and Image Proc. '93*, pp. 1219-1230, Cambridge, MA, Nov. 8-11, 1993.
25. J. P. Allebach, J. Z. Chang and C. A. Bouman, "Efficient Implementation of Nonlinear Color Transformations," (**invited paper**), *Proc. of Color Imaging Conference: Transforms & Transportability of Color*, pp. 143-148, Phoenix, Arizona, Nov. 7-11, 1993.
26. D. P. Hilgenberg, T. J. Flohr, C. B. Atkins, J. P. Allebach, and C. A. Bouman, "Least-Squares Model-Based Video Halftoning," *Proc. of SPIE/IS&T Conf. on Human Vision, Visual Processing, and Digital Display V*, vol. 2179, pp. 207-217, San Jose, CA, Feb. 7-10, 1994.
27. C. B. Atkins, T. J. Flohr, D. P. Hilgenberg, C. A. Bouman, and J. P. Allebach, "Model-Based Color Image Sequence Quantization," vol. 2179, pp. 310-317, *Proc. of SPIE/IS&T Conf. on Human Vision, Visual Processing, and Digital Display V*, San Jose, CA, Feb. 7-10, 1994.
28. M. W. Wolski, J. Allebach, C. Bouman, "Optimization of Sensor Response Functions for Colorimetry of Reflective and Emissive Objects," p 209-219, *Proc. of SPIE/IS&T Conf. on Device-Independent Color Imaging*, vol. 2170, San Jose, CA, Feb. 7-8, 1994.
29. D. Tretter, K. Khawaja, C. A. Bouman, and A. A. Maciejewski, "A CAD Driven Multiscale Approach to Automated Inspection," *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, vol. 5, pp. 397-400, Adelaide, South Australia, April 19-22, 1994.
30. C. A. Bouman and K. Sauer, "Maximum Likelihood Scale Estimation for a Class of Markov Random Fields," *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, vol. 5, pp. 537-540, Adelaide, South Australia, April 19-22, 1994.
31. J. P. Allebach, M. D. Zoltowski, and C. A. Bouman, "'Digital Signal Processing With Applications': A New and Successful Approach to Undergraduate DSP Education," *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, vol. 6, pp. 49-52, Adelaide, South Australia, April 19-22, 1994.
32. K. W. Khawaja, D. Tretter, A. Maciejewski, and C. Bouman, "Automated Assembly Inspection Using a Multiscale Algorithm Trained on Synthetic Images," *Proc. of 1994 IEEE International Conference on Robotics and Automation*, pp. 3530-3536, San Diego, CA, May 8-13, 1994.
33. J. P. Allebach, T. J. Flohr, D. P. Hilgenberg, C. B. Atkins, and C. A. Bouman, "Model-based Halftoning via Direct Binary Search," (**invited paper**), *Proc. of IS&T's 47th Annual Conference*, vol. 2, pp. 476-482, Rochester, New York, May 15-20, 1994.
34. J. Z. Chang, C. A. Bouman, and J. P. Allebach, "Recent Results in Color Calibration Using Sequential Linear Interpolation," *Proc. of IS&T's 47th Annual Conference*, vol. 2, pp. 500-505, Rochester, New York, May 15-20, 1994.
35. T. J. Flohr, J. P. Allebach and C. A. Bouman, "An Efficient Implementation for Stochastic DBS," *Proc. of SID'94 Conference Digest*, pp. 797-800, San Jose, CA, June 12-17, 1994.
36. C. A. Bouman and K. Sauer, "Direct Localized Optimization for Statistical Tomographic Reconstruction," presented at the *Midwest Workshop on Iterative Image Reconstruction*, Washington University, St. Louis, Missouri, June 17-18, 1994.
37. K. Sauer and C. A. Bouman, "Maximum Likelihood Dosage Estimation for Bayesian Transmission Tomography," *Proc. of IEEE Int'l Conf. on Image Proc.* vol. 2, pp. 844-848, Austin, Texas, Nov. 13-16, 1994.

38. J. Z. Chang, J. P. Allebach, and C. A. Bouman, "Optimal Sequential Linear Interpolation Applied to Nonlinear Color Transformations," *Proc. of IEEE Int'l Conf. on Image Proc.* vol. 3, pp. 987-991, Austin, Texas, Nov. 13-16, 1994.
39. J. Z. Chang, J. P. Allebach, and C. A. Bouman, "An Improved Method for Design of Sequential Linear Interpolation Structures," *the Proc. of the IS&T 10th Int'l Congress on Advances in Non-Impact Printing Technologies*, pp. 569-574, New Orleans, Louisiana, Oct. 30 - Nov. 4, 1994.
40. M. W. Wolski, J. P. Allebach, and C. A. Bouman, "Gamut Mapping: Squeezing the Most Out of Your Color System," (**invited paper**), *Proc. of 2nd IS&T/SID Color Imaging Conference: Color Science, Systems and Applications*, pp. 89-92, Scottsdale, Arizona, Nov. 15-18, 1994.
41. C. A. Bouman, K. Sauer and S. Saquib, "Tractable Models and Efficient Algorithms for Bayesian Tomography," (**invited paper**), vol. 5, pp. 2907-2910, *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, Detroit, Michigan, May 8-12, 1995.
42. S. Borman, K. Sauer and C. Bouman, "Weighted Median Predictive Techniques for Coefficient Estimation in NonGaussian Markov Random Fields," *Proc. IEEE Workshop on Nonlinear Signal and Image Processing*, Halkidiki, Greece, June 20-22, vol. 2, pp. 321-324, 1995.
43. K. D. Sauer and C. A. Bouman, "Modeling and Optimization in Bayesian Tomographic Reconstruction," (**invited paper**), pp. 57-80, *Proc. Workshop on Medical Image Processing at the IEEE Int'l Conf. on Engineering in Medicine and Biology*, Montreal, Canada, Sept. 18-22, 1995.
44. K. D. Sauer, S. Borman, and C. A. Bouman, "Parallel Computation of Sequential Pixel Updates in Statistical Tomographic Reconstruction," vol. 2, pp. 93-96, *IEEE Int'l Conf. on Image Proc.*, Washington, DC, Oct. 22-25, 1995.
45. S. Sista, C. A. Bouman, and J. Allebach, "Fast Image Search Using a Multiscale Stochastic Model," vol. 2, pp. 225-228, *IEEE Int'l Conf. on Image Proc.*, Washington, DC, Oct. 22-25, 1995.
46. M. Wolski, C. A. Bouman, J. P. Allebach, and E. Walowit, "Optimization of Sensor Response Function for Colorimetry of Reflective and Emissive Objects," vol. 2, pp. 323-326, *IEEE Int'l Conf. on Image Proc.*, Washington, DC, Oct. 22-25, 1995.
47. S. Saquib, C. A. Bouman, and K. Sauer, "Efficient ML Estimation of the Shape Parameter for Generalized Gaussians MRF," vol. 4, pp. 2229-2232, *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, Atlanta, GA, May 7-10, 1996.
48. S. Saquib, C. A. Bouman, and K. Sauer, "A New Multiscale Image Model for Bayesian Tomography," pp. 144-145, *Proc. of the Ninth Image and Multidimensional Signal Processing Workshop*, Belize City, Belize, March 3-6, 1996.
49. A. Ađar, J. P. Allebach, and C. A. Bouman "Minimax Methods for Surface Interpolation Using and SLI Structure," pp. 66-67, *Proc. of the Ninth Image and Multidimensional Signal Processing Workshop*, Belize City, Belize, March 3-6, 1996.
50. K. W. Khawaja, A. Maciejewski, D. Tretter, and C. Bouman, "Camera and Light Placement for Automated Assembly Inspection," pp. 66-67, *Proc. of 1996 IEEE International Conference on Robotics and Automation*, Minneapolis, Minnesota, April 22-28, 1996.
51. J.-Y. Chen, C. A. Bouman, and J. P. Allebach, "Stochastic Models for Fast Multiscale Image Search," (**invited paper**), presented at the meeting of the *Classification Society of North America*, University of Massachusetts, Amherst, MA, June 13-16, 1996.
52. J. P. Allebach, C. A. Bouman, E. J. Coyle, E. J. Delp, D. A. Landgrebe, A. A. Maciejewski, Z. Pizlo, N. B. Shroff and M. D. Zoltowski "Video and image systems engineering education for the 21st century," *IEEE Int'l Conf. on Image Proc.*, vol. 1, pp. 449-452, Lausanne Switzerland, Sept. 16-19, 1996.

53. S. S. Saquib, C. A. Bouman, and K. Sauer, "A Non-Homogeneous MRF Model for Multiresolution Bayesian Estimation," *IEEE Int'l Conf. on Image Proc.*, vol. 2, pp. 445-448, Lausanne Switzerland, Sept. 16-19, 1996.
54. S. Saquib, J. Zheng, C. A. Bouman, and K. Sauer, "Provably Convergent Coordinate Descent in Statistical Tomographic Reconstruction," *IEEE Int'l Conf. on Image Proc.*, vol. 2, pp. 741-744, Lausanne Switzerland, Sept. 16-19, 1996.
55. C. C. Taylor, Z. Pizlo, J. P. Allebach, and C. A. Bouman, "Image Quality Assessment with a Gabor Pyramid Model of the Human Visual System," *Proc. of SPIE/IS&T Conf. on Human Vision and Electronic Imaging II*, vol. 3016, pp. 58-69, San Jose CA, Feb. 10-13, 1997.
56. T. Frese, C. A. Bouman, and J. P. Allebach, "Methodology for designing Image Similarity Metrics Based on Human Visual System Models," *Proc. of SPIE/IS&T Conf. on Human Vision and Electronic Imaging II*, vol. 3016, pp. 472-483, San Jose CA, Feb. 10-13, 1997.
57. J.-Y. Chen, C. A. Bouman, and J. P. Allebach, "Multiscale Branch and Bound Algorithm Image Database Search," *Proc. of SPIE/IS&T Conf. on Storage and Retrieval for Image and Video Databases V*, vol. 3022, pp. 133-144, San Jose CA, Feb. 10-13, 1997.
58. H. Cheng, C. A. Bouman, and J. P. Allebach, "Multiscale Document Segmentation," *IS&T 50th Annual Conference*, pp. 417-425, Cambridge, MA, May 18-23, 1997.
59. C. A. Bouman and K. Sauer, "Multiscale Bayesian Reconstruction Algorithms for Discrete Tomography," (**invited paper**), presented at the NSF sponsored *Discrete Tomography Workshop*, Szeged, Hungary August 25-27, 1997.
60. K. Sauer and C. A. Bouman, "Nonlinear Back Projection for Tomographic Image Reconstruction," *IEEE/EURASIP Workshop on Nonlinear Signal and Image Processing.*, paper no. 332, Mackinac Island, Michigan, Sept. 8-10, 1997.
61. C. Brian Atkins, J. P. Allebach, and C. A. Bouman, "Halftone Postprocessing for Improved Highlight Rendition," *IEEE Int'l Conf. on Image Proc.*, vol. 1, pp. 791-794, Santa Barbara, CA, Oct. 26-29, 1997.
62. J.-Y. Chen, C. A. Bouman and J. P. Allebach, "Fast Image Database Search using Tree-Structured VQ," *IEEE Int'l Conf. on Image Proc.*, vol. 2, pp. 827-830, Santa Barbara, CA, Oct. 26-29, 1997.
63. J.-Y. Chen, C. A. Bouman, and J. Dalton, "Similarity Pyramids for Browsing and Organization of Large Image Databases," *Proc. of SPIE/IS&T Conf. on Human Vision and Electronic Imaging III*, vol. 3299, pp. 563-575, San Jose CA, January 26-29, 1998.
64. B. E. Rogowitz, T. Frese, J. R. Smith, and C. Bouman, "Perceptual Image Similarity Experiments," *Proc. of SPIE/IS&T Conf. on Human Vision and Electronic Imaging III*, vol. 3299, pp. 576-590, San Jose CA, January 26-29, 1998.
65. J.-Y. Chen, C. Taşkiran, E. J. Delp and C. A. Bouman, "ViBE: A New Paradigm for Video Database Browsing and Search," *IEEE Workshop on Content-Based Access of Image and Video Libraries*, pp. 96-100, Santa Barbara, CA, June 21, 1998.
66. S. Borman, K. Sauer, and C. Bouman, "Nonlinear Prediction Methods for Estimation of Clique Weighting Parameters in NonGaussian Image Models," *Proc of SPIE Conf on Bayesian Inference for Inverse Problems*, pp. 369-377, vol. 3459, San Diego, CA, 23-24 July, 1998.
67. J.-B. Thibault, K. Sauer, and C. Bouman, "Accuracy of Statistical Image Estimates under Approximations to Poisson Log-Likelihood Functions," pp. 254-258, *Proc. Midwest Symposium on Circuits and Systems*, University of Notre Dame, Notre Dame, IN, Aug 9-12, 1998.

68. C. Taşkıran, J.-Y. Chen, C. A. Bouman, and E. J. Delp, "A Compressed Video Database Structured for Active Browsing and Search," *IEEE Int'l Conf. on Image Proc.*, pp. 133-137, vol. 3, Chicago, IL, Oct. 4-7, 1998.
69. H. Cheng and C. A. Bouman, "Trainable Context Model for Multiscale Segmentation," *IEEE Int'l Conf. on Image Proc.*, pp. 610-614, vol. 1, Chicago, IL, Oct. 4-7, 1998.
70. T. Frese, C. A. Bouman, and K. Sauer, "Discrete Multiscale Bayesian Image Reconstruction," *33rd Asilomar Conference on Signals, Systems, and Computers*, pp. 1687-1691, vol. 2, Pacific Grove, CA, November 1-4, 1998.
71. J.-Y. Chen, C. A. Bouman, and J. C. Dalton, "Active Browsing with Similarity Pyramids," *33rd Asilomar Conference on Signals, Systems, and Computers*, pp. 248-252, vol. 1, Pacific Grove, CA, November 1-4, 1998.
72. J.-Y. Chen, C. A. Bouman, and J. C. Dalton, "Active Browsing using Similarity Pyramids," *Proc. of SPIE/IS&T Conf. on Storage and Retrieval for Image and Video Database VII*, pp. 144-154, vol. 3656, San Jose, CA, January 26-29, 1999.
73. C. Brian Atkins, C. A. Bouman, and J. P. Allebach, "Tree-Based Resolution Synthesis" pp. 405-410, *IS&T Conference on Image Processing, Image Quality, Image Capture Systems Conference (PICS)*, pp. 405-410, Savannah Georgia, April 25-28, 1999.
74. H. Cheng and C. A. Bouman, "Optimal Segmentation for Document Compression," (**invited paper**), *Proc. of IEEE Information Theory Workshop on Detection, Estimation, Classification and Imaging (DECI)*, p. 70, Santa Fe New Mexico, February 24-26, 1999.
75. C. A. Bouman, J. C. Ye, K. J. Webb, and R. P. Millane, "Fast Inverse Algorithms for Optical Diffusion Tomography," (**invited paper**), NSF conference on *DSP for Sampled Coherent Aperture Systems: Challenges, Synergies and Extensions*, Charlottesville, Virginia, July 7-9, 1999.
76. J. C. Ye, C. A. Bouman, K. J. Webb, and R. P. Millane, "Optical Diffusion Tomography Using Iterative Coordinate Descent Optimization in a Bayesian Framework," *Proc. of SPIE Conference on Mathematical Modeling, Bayesian Estimation, and Inverse Problems*, pp. 45-56, vol. 3816, Denver, Colorado, July 21-23, 1999.
77. J.-B. Thibault, K. Sauer and C. Bouman "Approximate Poisson Likelihood for Simple Optimization in MAP Tomographic Estimation," *Proc. of SPIE Conference on Mathematical Modeling, Bayesian Estimation, and Inverse Problems*, pp. 161-171, vol. 3816, Denver, Colorado, July 21-23, 1999.
78. T. Frese, C. A. Bouman, and K. Sauer, "Multiscale Models for Bayesian Inverse Problems," (**invited paper**), the SPIE conference on *Wavelet Applications in Signal and Image Processing VII*, vol. 3813, pp. 85-96, Denver, Colorado, July 19-23, 1999.
79. R. P. Millane, J. C. Ye, C. A. Bouman, and K. J. Webb, "Efficient algorithms for Bayesian optical diffusion imaging," *Proc. Imaging and Vision Computing New Zealand 1999*, pp. 222-227, D. Pairman and H. North (eds.), Landcare Research, Lincoln, NZ, Aug. 30-31, 1999.
80. K. J. Webb, J. C. Ye, C. A. Bouman, and R. P. Millane "Optimization-based optical diffusion tomography," (**invited paper**), *Optical Society of America Annual Meeting*, Sept. 26 - Oct. 1, 1999, Santa Clara, CA.
81. K. J. Webb, J. C. Ye, C. A. Bouman, and R. P. Millane, "Nonlinear multigrid optimization for soft tissue imaging using a Bayesian optical diffusion approach," *NIH Workshop on In Vivo Optical Imaging*, Bethesda, MD, September 16-17, 1999.
82. J. Chen, C. M. Taskiran, A. Albiol, C. A. Bouman, E. J. Delp "ViBE: A Video Indexing and Browsing Environment," *Proceedings of the SPIE Conference on Multimedia Storage and Archiving Systems IV*, vol. 3846, pp. 148-164, Boston, September 20-22, 1999.

83. J. C. Ye, C. A. Bouman, R. P. Millane, and K. J. Webb, "Nonlinear Multigrid Optimization for Bayesian Diffusion Tomography," *IEEE Int'l Conf. on Image Proc.*, vol. 2, pp. 653-657, Kobe, Japan, October 25-28, 1999.
84. A. Albiol, E. J. Delp, and C. A. Bouman, "Face Detection for Pseudo-Semantic Labeling," *IEEE Int'l Conf. on Image Proc.*, Kobe, Japan, October 25-28, 1999.
85. B. I. Andia, K. Sauer, and C. A. Bouman, "Nonlinear, Noniterative Bayesian Tomographic Image Reconstruction," *IEEE Int'l Conf. on Image Proc.*, vol. 2, pp. 668-671, Kobe, Japan, October 25-28, 1999.
86. H. Cheng and C. A. Bouman, "Multilayer Document Compression Algorithm," **(invited paper)** *IEEE Int'l Conf. on Image Proc.*, vol. 1, pp. 244-248, Kobe, Japan, October 25-28, 1999.
87. C. A. Bouman, J. C. Ye, K. J. Webb, and R. Millane "Nonlinear multigrid optimization with applications to optical diffusion tomography," **(invited paper)**, *34th Annual Conference on Information Sciences and Systems*, Princeton, NJ, March 15-17, 2000.
88. J. C. Ye, C. A. Bouman, R. P. Millane, and K. J. Webb "Nonlinear multigrid optical diffusion tomography," **(invited paper)**, *OSA Biomedical Topical Meetings: Workshop on Diffuse Optical Tomography*, Miami, FL, April 2-5, 2000.
89. R. P. Millane, C. A. Bouman, K. J. Webb, and J. C. Ye, "Multigrid Bayesian methods for optical diffusion tomography," *SPIE International Symposium on Optical Science and Technology (Image Reconstruction and Incomplete Data)*, vol. 4123, pp. 295-306, July 30 - August 4, 2000, San Diego, CA.
90. K. J. Webb, J. C. Ye, C. A. Bouman, and R. P. Millane, "Optical Diffusion Imaging Using Nonlinear Multigrid Optimization," *European Conference on Lasers and Electro-Optics*, Nice, France, September 10-15, 2000.
91. S. Chen, C. A. Bouman, and M. J. Lowe, "Analysis of the BOLD fMRI Timeseries Data II: Clustered Component Analysis," *Neuroimage*, vol. II, no. 5, part 2/2, p. S211, 2000.
92. S. Chen, C. A. Bouman, and M. J. Lowe, "Analysis of the BOLD fMRI Timeseries Data I: Harmonic Decomposition and Eigenanalysis," *Neuroimage*, vol. II, no. 5, part 2/2, p. S205, 2000.
93. Sea Chen, Charles A. Bouman, and Mark J. Lowe, "Harmonic Decomposition and Eigenanalysis of BOLD fMRI Timeseries Data," *Proceedings of the 8th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, p. 817, 2000.
94. T. Frese, C. A. Bouman, N. C. Rouze, G. D. Hutchins, and K. Sauer, "Bayesian Multiresolution Algorithm for PET Reconstruction," *IEEE Int'l Conf. on Image Proc.*, Vancouver Canada, Sept. 10-13, 2000.
95. C. A. Bouman, Sea Chen, and Mark J. Lowe, "Cluster Component Analysis for fMRI Signal Estimation and Classification," *IEEE Int'l Conf. on Image Proc.*, vol. 1, pp. 609-612, Vancouver Canada, Sept. 10-13, 2000.
96. A. Albiol, L. Torres, C. A. Bouman, E. Delp, "A simple and efficient face detection algorithm for video database," *IEEE Int'l Conf. on Image Proc.*, vol.2, pp. 239-242, Vancouver Canada, Sept. 10-13, 2000.
97. C. M. Taskiran, C. A. Bouman, E. J. Delp, "The ViBE video database system: an update and further studies," *Proceedings of the SPIE/IS&T Conference on Storage and Retrieval for Media Databases 2000*, vol. 3972, pp. 199-207, San Jose, CA, January 26-28, 2000.
98. T. Frese, N. C. Rouze, C. A. Bouman, Ken Sauer, and G. D. Hutchins, "MAP Reconstruction Applied to the IndyPET Scanner," Abstracts of Contributed Papers, presented at the *47th Annual Meeting of the Society of Nuclear Medicine*, St. Louis, 2000.

99. B. I. Andia, K. D. Sauer, C. A. Bouman, "Nonlinear sinogram filter design for backprojection reconstruction," *IEEE Nuclear Science Symposium Conference Record*, vol. 2, pp. 15-179-15-183, 2000.
100. C. M. Taskiran, C. A. Bouman, and E. J. Delp, "Discovering Video Structure Using the Pseudosemantic Trace" *Proceedings of the SPIE Conference on Storage and Retrieval for Media Databases*, vol. 4315, pp. 571-578, San Jose, CA, January 2001.
101. C. A. Bouman, "Image Database Search and Browsing," (**invited paper**), presented at the *IMA workshop on Digital Libraries - Classification, Retrieval and Visualization*, February 26 - March 2, 2001.
102. G. Feng, H. Cheng, and C. Bouman "High Quality MRC Document Coding," *IS&T Conference on Image Processing, Image Quality, Image Capture Systems Conference (PICS)*, pp. 320-325, Montreal Canada, April 21-25, 2001.
103. Mustafa Kamasak, Anand V. Deshpande, Kok Leong Thoon, Charles A. Bouman, George T.-C. Chiu, and Jan P. Allebach, "Dynamic Print Mode Control," *NIP17: International Conference on Digital Printing Technologies*, Fort Lauderdale, Florida, Sept. 30 - Oct. 5, 2001.
104. A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, "Three dimensional optical diffusion imaging in a Bayesian framework," *Lasers and Electro-Optics, 2001. CLEO '01*, Technical Digest, pp. 400 -401, 2001.
105. C. B. Atkins, C. A. Bouman, J. P. Allebach, "Optimal image scaling using pixel classification" *IEEE Int'l Conf. on Image Proc.*, vol. 3, pp. 864-867, 2001.
106. G. Feng, H. Cheng, C. A. Bouman, "Rate distortion optimized document coding using resolution enhanced rendering," *IEEE Int'l Conf. on Image Proc.*, vol. 3, pp. 430-433, 2001.
107. S. Oh, A. B. Milstein, R. P. Millane, C. A. Bouman, and K. J. Webb, "Three-dimensional Bayesian optical diffusion tomography with source-detector calibration," *IEEE and Optical Society of America Symposium on Signal Recovery and Synthesis*, Albuquerque, NM, Nov. 5-8, 2001.
108. S. Oh, A. Milstein, J. S. Reynolds, K. J. Webb, C. A. Bouman and R. P. Millane, "Reconstructing optical diffusion images from multiple modulation frequency measurements," *Optical Society of America Annual Meeting, Long Beach, CA*, Oct. 14-18, 2001.
109. K. J. Webb, A. B. Milstein, S. Oh, C. A. Bouman, and R. P. Millane, "Three-dimensional optical diffusion imaging with detector noise," *European Conf. Biomed. Optic*, Munich, Germany, June 2001.
110. A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, R. P. Millane, "Three-Dimensional Bayesian Optical Diffusion Tomography: Source-Detector Calibration," *Proceedings of the SPIE Conference on Optical Boipsy IV*, vol. 4613, pp. 174-182, San Jose California, January 21-23, 2002.
111. H. Cheng, G. H. Feng, C. A. Bouman, "Rate-Distortion Based Segmentation for MRC Compression," *Proceedings of the SPIE Conference on Color Imaging: Device-Independent Color, Color Hardcopy, and Applications VII* vol. 4663, San Jose California, January 21-23, 2002.
112. Z. He and C. A. Bouman, "AM/FM Halftoning: A Method for Digital Halftoning through Simultaneous Modulation of Dot Size and Dot Placement," *Proceedings of the SPIE Conference on Color Imaging: Device-Independent Color, Color Hardcopy, and Applications VII* vol. 4663, San Jose California, January 21-23, 2002.
113. A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, and R. P. Millane, "Three-dimensional Bayesian Optical Diffusion Imaging with Fluorescence," *OSA Biomedical Topical Meeting*, Miami Beach, FL, April 7-10, 2002.
114. A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, and R. P. Millane, "Imaging of Fluorescence Absorption, and Scattering Properties in Diffuse Media using Pump and Emission Wavelength Measurements," *IEEE/OSA Conf. Laser and Electro-Optics*, Long Beach, CA, May 19-24, 2002.

115. S. Chen, C. A. Bouman, and M. J. Lowe, "Supertemporal Resolution of 2-D BOLD EPI fMRI Timecourse Data," *Proceedings of the 10th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, p. 1400, 2002.
116. S. Chen, C. A. Bouman, and M. J. Lowe, "Supertemporal Resolution of Functional MRI Timecourse Data," *Proceedings of the IEEE International Symposium on Biomedical Imaging*, pp. 911-914, July 7-10, 2002.
117. R. P. Millane, A. B. Milstein, S. Oh, C. A. Bouman, and K. J. Webb, "Image Reconstruction in Optical Diffusion Tomography," *2002 SPIE Annual Meeting*, Seattle, WA, July 7-11, 2002.
118. A. B. Milstein, Q. Zhang, S. Oh, K. J. Webb, C. A. Bouman, R. P. Millane, and D. A. Boas, "Fluorescence Imaging in Optical Diffusion Tomography," *Proceedings of the IEEE International Symposium on Biomedical Imaging*, pp. 58-61, July 7-10, 2002.
119. S. Oh, A. B. Milstein, C. A. Bouman, K. J. Webb, "Multigrid Inversion Algorithms with Applications to Optical Diffusion Tomography," *Proceedings of the 36th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 3-6, 2002.
120. K. J. Webb, A. B. Milstein, M. D. Kennedy, K. N. Jallad, C. A. Bouman, and P. S. Low, "Folate Conjugate Fluorescence Labeling for Tumor Localization," National Institutes of Health Workshop on Optical Imaging, Bethesda, MD, Sept. 26-27, 2002.
121. G. Feng, M. G. Fuchs, and C. A. Bouman, "Image Rendering for Digital Fax," *Proceedings of the SPIE/IS&T Conference on Color Imaging: Device-Independent Color, Color Hardcopy, and Applications VII*, Santa Clara, CA, January 23-24, 2003.
122. S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Multigrid Algorithms for Optimization and Inverse Problems," *Proceedings of the SPIE/IS&T Conference on SPIE/IS&T - Computational Imaging 2003*, pp. 59-70, Santa Clara, CA, January 23-24, 2003.
123. I. Pollak, J. M. Siskind, M. P. Harper, and C. A. Bouman, "Modeling and Estimation of Spatial Random Trees with Application to Image Classification," to appear in the *Proc. of IEEE Int'l Conf. on Acoust., Speech and Sig. Proc.*, April 2003.
124. M. J. Lowe, S. Chen, and C. A. Bouman, "A Novel Data Reduction Procedure for Estimating Low Frequency BOLD Fluctuation Signals," Presented at the *Ninth International Conference on Functional Mapping of the Human Brain*, New York, June 18-21, 2003.
125. Jean-Baptiste Thibault, Ken Sauer, Charles Bouman, and Jiang Hsieh, "High Quality Iterative Image Reconstruction for Multi-Slice Helical CT," *International Conference on Fully 3D Reconstruction in Radiology and Nuclear Medicine*, Saint Malo, June 29 - July 4, 2003.
126. M. J. Lowe, S. Chen, and C. A. Bouman, "A Novel Data Reduction Procedure for Estimating Low Frequency BOLD Fluctuation Signals," Presented at the *ISMRM Eleventh Scientific Meeting*, Toronto, Canada, July 11-16, 2003.
127. I. Pollak, J.M. Siskind, M.P. Harper, and C.A. Bouman, "Parameter Estimation for Spatial Random Trees Using the EM Algorithm," *Proceedings of the IEEE International Conference on Image Processing*, pp. 257-260, Barcelona Spain, September 2003.
128. I. Pollak, J. M. Siskind, M. P. Harper, and C. A. Bouman, "Parameter Estimation for Spatial Random Trees using the EM Algorithm," *IEEE Int'l Conf. on Image Proc.*, vol. 1, pt. 1, pp. 257-260, Barcelona, Spain, September 14-17, 2003.
129. S. Oh, A. B. Milstein, C. A. Bouman, K. J. Webb, "Nonlinear multigrid inversion," *IEEE Int'l Conf. on Image Proc.*, vol. 1, pt. 1, pp. 1057-1060, Barcelona, Spain, September 14-17, 2003.

130. M. Kamasak, C. Bouman, E. Morris, K. Sauer “Direct Reconstruction of Kinetic Parameter Images from Dynamic PET Data ,” *Proceedings of the 37th Asilomar Conference on Signals, Systems, and Computers*, pp. 1919-1923, Pacific Grove, CA, November 9-12, 2003.
131. Yan Huang, Ilya Pollak, Minh Do, Charles A. Bouman, “Optimal tilings and best basis search in large dictionaries,” *Proceedings of the 37th Asilomar Conference on Signals, Systems, and Computers*, pp. 327-331, Pacific Grove, CA, November 9-12, 2003.
132. Seungseok Oh, A. B. Milstein, C. A. Bouman, K. J. Webb, “Adaptive nonlinear multigrid inversion with applications to Bayesian optical diffusion tomography,” *Proceedings of the 2003 IEEE Workshop on Statistical Signal Processing*, pp. 170-173, 2003.
133. J. M. Siskind, I. Pollak, M. Harper, C. A. Bouman, “Stochastic grammars for images on arbitrary graphs,” *Proceedings of the 2003 IEEE Workshop on Statistical Signal Processing*, p. 407, 2003.
134. A. B. Milstein, S. Oh, C. A. Bouman, K. J. Webb, J. J. Stott, D. A. Boas, and R. P. Millane, “Imaging from time-resolved fluorescence in turbid media,” *OSA Conference on Lasers and Electro-Optics (CLEO)*, p 835-836, vol. 88, 2003.
135. Zhen He, Tichiun Chang, Jan P. Allebach, and Charles A. Bouman, “Boundary stitching algorithm for parallel implementation of error diffusion,” *Proceedings of SPIE - Color Imaging IX: Processing, Hardcopy, and Applications*, vol. 5293, p 344-355, 2003.
136. Y. Huang, I. Pollak, C. A. Bouman, M. N. Do, “New algorithms for best local cosine basis search,” *IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 2, pt. 2, p 773-776, 2004.
137. A. Alessio, K. Sauer, C. Bouman, P. Kinahan, “PET statistical reconstruction with modeling of axial effects of *FORE*,” *2003 IEEE Nuclear Science Symposium*, vol. 4, pt. 4, p 2804-2807, 2004.
138. A. B. Milstein, S. Oh, C. A. Bouman, K. J. Webb, J. J. Stott, D. A. Boas, “Mutual information as a performance measure for fluorescence optical diffusion tomography” *OSA Conference on Lasers and Electro-Optics (CLEO)*, vol. 2, pt. 2, p 2, 2004.
139. Yan Huang, Ilya Pollak, Charles A. Bouman, Minh N. Do, “Time-frequency analysis with best local cosine bases,” *Proceedings of SPIE/IS&T - Computational Imaging II*, vol. 5299, p 187-192, 2004.
140. A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, “Direct reconstruction of kinetic parameter images in fluorescence optical diffusion tomography,” *Proceedings of IEEE International Symposium on Biomedical Imaging*, p 1107-10, vol. 2, Washington, DC, April 15-18, 2004.
141. S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, “Multigrid inversion with variable resolution data and parameter spaces,” *Proceeding of the SPIE/IS&T Conference on Computational Imaging*, San Jose, CA, Jan. 2004.
142. A. B. Milstein, S. Oh, C. A. Bouman, and K. J. Webb, “Estimation of kinetic model parameters in optical diffusion tomography,” *Proceedings of the SPIE/IS&T Conference on Computational Imaging*, San Jose, CA, Jan. 2004.
143. Z. He, C. A. Bouman, “Clustered AM/FM halftoning algorithm,” *Proceedings of IS&T NIP20*, pp 627-631, 2004.
144. B. Bitlis, X. Feng, J. L. Harris, I. Pollak, C. A. Bouman, M. P. Harper, J. P. Allebach, “A hierarchical document description and comparison method,” *Proceedings of IS&T's 2004 Archiving Conference*, pp. 195-198, 2004.
145. A. B. Milstein, S. Oh, C. A. Bouman, and K. J. Webb, “Kinetic Fluorescence Optical Diffusion Tomography,” *OSA Frontiers in Optics*, Oct. 10-14, 2004, Rochester, NY.

146. Y. Huang, I. Pollak, and C. Bouman, "Image compression with multitree tilings," *IEEE ICASSP*, vol. 2, pp. 193-196, 2005.
147. J. C. Ye, K. Webb, R. Millane, and C. Bouman, "In vivo optical molecular imaging: principles and signal processing issues," *IEEE ICASSP*, vol. 5, pp. 849-852, 2005.
148. M. E. Kamasak, C. A. Bouman, E. D. Morris, and K. Sauer, "Reconstruction of kinetic parameter images directly from dynamic PET sinograms," *Proceedings of the SPIE Medical Imaging Conference*, vol 5747, no 1, p 400-411, 2005.
149. Animesh Khemka, Charles A. Bouman, and Mark R. Bell, "Inversion of Flow Fields from Sensor Network Data," SPIE/IS&T Conference on *Computational Imaging III*, vol. 5674, pp. 374-381, San Jose, CA, January 17-18, 2005.
150. Mustafa E. Kamasak, Charles A. Bouman, Evan D. Morris and Ken Sauer, "Parametric Reconstruction of Kinetic PET Data with Plasma Function Estimation," SPIE/IS&T Conference on *Computational Imaging III*, vol. 5674, pp. 293-304, San Jose, CA, January 17-18, 2005.
151. Seungseok Oh, Charles A. Bouman, Kevin J. Webb, "Multigrid Inversion Algorithm for Poisson Noise Model-based Tomographic Reconstruction," SPIE/IS&T Conference on *Computational Imaging III*, vol. 5674, pp. 455-466, San Jose, CA, January 17-18, 2005.
152. Charles Bouman, "Grand Challenge Problems in Digital Image Rendering," (**invited paper**), presented at SPIE/IS&T Conference on *Color Imaging X: Processing, Hardcopy, and Applications*, San Jose, CA, January 17-20, 2005.
153. A. B. Milstein, C. A. Bouman, K. J. Webb, M. D. Kennedy, and P. S. Low, "A statistical approach for detection and localization of a fluorescing mouse tumor in Intralipid," *CLEO/IQEC Conference*, May 23-26, 2005, Baltimore, MD.
154. S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Nonlinear multigrid inversion for optical diffusion tomography," *CLEO/IQEC Conference*, May 23-26, 2005, Baltimore, MD.
155. Y. Huang, I. Pollak, M. N. Do, and C. A. Bouman, "Fast globally optimal search in tree-structured dictionaries," *Wavelets XI*, vol. 5914, pp. 1-10, 2005.
156. W. Wang, I. Pollak, M. Harper, and C. A. Bouman, "Fast globally optimal search in tree-structured dictionaries," *Mathematical Methods in Pattern and Image Analysis*, vol. 5916, pp. 1-9, 2005.
157. Jean-Baptiste Thibault, Ken Sauer, Charles A. Bouman, Jiang Hsieh, "Three-Dimensional Statistical Modeling for Image Quality Improvements in Multi-Slice Helical CT," *Proceedings of the Fully 3-D Conference*, Salt Lake City, July 6-9, 2005.
158. Y. Huang, I. Pollak, and C. A. Bouman, "Optimal representations in multitree dictionaries with application to compression," *IEEE ICIP*, p. 20, September 11-14, 2005.
159. B. De Man, S. Basu, J.-B. Thibault, J. Hsieh, J. A. Fessler, C. A. Bouman, and K. Sauer, "A Study of Different Minimization Approaches for Iterative Reconstruction in X-Ray CT," *IEEE Nuclear Science Symposium*, vol. 5, pp. 2708-2710, October 23-29, 2005.
160. J.-B. Thibault, C. A. Bouman, K. D. Sauer, J. Hsieh, "A Recursive Filter for Noise Reduction in Statistical Iterative Tomographic Imaging," SPIE/IS&T Conference on *Computational Imaging IV*, vol. 6065, San Jose CA, Jan. 16-17, 2006.
161. W. Wang, T.-S. Wong, I. Pollak, C. A. Bouman, M. P. Harper, "Modeling hierarchical structure of images with stochastic grammars," SPIE/IS&T Conference on *Computational Imaging IV*, vol. 6065, San Jose CA, Jan. 16-17, 2006.

162. G. Feng, C. A. Bouman, "Efficient document rendering with enhanced run length encoding," SPIE/IS&T Conference on *Color Imaging XI: Processing, Hardcopy, and Applications*, vol. 6058, San Jose CA, Jan. 17-19, 2006.
163. E. D. Morris, M. E. Kamasak, B. T. Cristian, T. E. Cheng, and C. A. Bouman, "Visualizing All the Fits: Evaluating the Quality and Precision of Parametric Images Created from Direct Reconstruction of PET Sinogram Data" *IEEE International Symposium on Biomedical Imaging*, pp. 291-294, April 6 2006.
164. G. Cao, C. A. Bouman, and K. J. Webb, "Fast and Efficient Stored Matrix Techniques for Optical Tomography," (**invited paper**), *Fortieth Asilomar Conference on Signals, Systems and Computers*, pp. 156-160, Pacific Grove CA, Oct. 29 - Nov. 1, 2006.
165. Zhou Yu, Jean-Baptiste Thibault, Ken Sauer, Charles Bouman, and Jiang Hsieh, "Accelerated Line Search for Coordinate Descent Optimization," *IEEE Nuclear Science Symposium*, pp. 2841-2844, vol. 5, Oct. 29 - Nov. 1, 2006.
166. Zhou Yu, Jean-Baptiste Thibault, Ken D. Sauer, Charles A. Bouman, and Jiang Hsieh, "Non-Homogeneous Updates for the Iterative Coordinate Descent Algorithm," SPIE/IS&T Conference on *Computational Imaging V*, vol. 6498, San Jose CA, 28 January - 1 February, 2007.
167. H. Siddiqui and C. A. Bouman, "Training-Based Algorithm for Moire Suppression in Scanned Halftone Images," SPIE/IS&T Conference on *Computational Imaging V*, vol. 6498, San Jose CA, 28 January - 1 February, 2007.
168. Eri Haneda, Jonghyon Yi, and Charles A. Bouman, "Segmentation for MRC Compression," SPIE/IS&T Conference on *Color Imaging XII: Processing, Hardcopy, and Applications*, vol. 6493, San Jose CA, 28 January - 1 February, 2007.
169. Maribel Figuera, Jonghyon Yi, and Charles A. Bouman, "A New Approach to JBIG2 Binary Image Compression," SPIE/IS&T Conference on *Color Imaging XII: Processing, Hardcopy, and Applications*, vol. 6493, San Jose CA, 28 January - 1 February, 2007.
170. Seong Wook Han, M. Jain, R. Kumontoy, C. Bouman, P. Majewicz, and J. P. Allebach, "AM/FM Halftoning: Improved Cost Function and Training Framework," SPIE/IS&T Conference on *Color Imaging XII: Processing, Hardcopy, and Applications*, vol. 6493, San Jose CA, 28 January - 1 February, 2007.
171. H. Siddiqui, C. A. Bouman, "Training-Based Color Correction for Camera Phone Images," *2007 IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. I-733-736, 2007.
172. Sangtae Ahn, A. J. Chaudhari, F. Darvas, C. A. Bouman, R. M. Leahy, "Fast Image Reconstruction Methods for fully 3D Multispectral Optical Bioluminescence Tomography," *2007 4th IEEE International Symposium on Biomedical Imaging: Macro to Nano*, pp. 229-32, 2007.
173. Guangzhi Cao, Charles A. Bouman, and Kevin J. Webb, "Fast Reconstruction Algorithms for Optical Tomography using Sparse Matrix Representation" (**invited paper**), *2007 4th IEEE International Symposium on Biomedical Imaging: Macro to Nano*, pp. 912-915, April 14, 2007.
174. Guangzhi Cao, Charles A. Bouman, and Kevin J. Webb, "Inhomogeneity Localization in Scattering Media Based on an Optical Diffusion Model," *CLEO '07. 2007 Conference on Lasers and Electro-Optics*, pp. 34-35, 5-11 May 2007.
175. X. Dong, P. Majewicz, G. McNutt, C. Bouman, J. Allebach, and I. Pollak, "A Document Page Classification Algorithm in Copy Pipeline" *Proceedings 2007 IEEE International Conference on Image Processing, ICIP 2007*, pp. III-237-240, 16-19 Sept. 2007.
176. Zhou Yu, Jean-Baptiste Thibault, Charles Bouman, and Jiang Hsieh, "Accelerated Line Search for Coordinate Descent Optimization," *IEEE Nuclear Science Symposium*, pp. 4, 2007.

177. Tak-Shing Wong, Charles A. Bouman, and Ilya Pollak, "Improved JPEG Decompression of Document Images Based on Image Segmentation," *2007 IEEE Statistical Signal Processing Workshop*, August 26-29, 2007.
178. M. E. Kamasak, C. A. Bouman, B. T. Christian, and E. D. Morris, *2007 15th IEEE Signal Processing and Communications Applications*, pp. 553-556, 11-13 June 2007, Eskisehir, Turkey.
179. Zhou Yu, Jean-Baptiste Thibault, Ken D. Sauer, Charles A. Bouman, and Jiang Hsieh, "Accelerated Line Search for Coordinate Descent Optimization," *2006 IEEE Nuclear Science Symposium - Conference Record*, vol. 5, pp. 2841-2844, San Diego, CA, Oct 29-Nov 4 2006.
180. Seong Wook Han, M. Jain, R. Kumontoy, Charles A. Bouman, Peter Majewicz, and Jan. P. Allebach, "AM/FM Halftoning: Improved Cost Function and Training Framework," *Proceedings of SPIE-IS&T Electronic Imaging - Color Imaging XII: Processing, Hardcopy, and Applications*, pp. 64931B-1-9, vol. 6493, San Jose, CA, 30 Jan. 2007.
181. Guangzhi Cao, Charles A. Bouman, and Kevin J. Webb, "Results in Non-Iterative MAP Reconstruction for Optical Tomography," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging VI*, vol. v 6814, January 28-29 2008.
182. Zhou Yu, Jean-Baptiste Thibault, Charles A. Bouman, Ken D. Sauer, and Jiang Hsieh, "Non-homogeneous ICD Optimization for Targeted Reconstruction of Volumetric CT," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging VI*, vol. v 6814, January 28-29 2008.
183. Maribel Figuera, Peter Majewicz, and Charles A. Bouman, "Hardware-Friendly Mixed Content Compression Algorithm," *Proceedings of SPIE-IS&T Electronic Imaging - Color Imaging XIV: Displaying, Processing, Hardcopy, and Applications*, vol. 7241, San Jose, CA, January 20 - 21, 2009.
184. Jianing Wei, Guangzhi Cao, Charles A. Bouman, and Jan P. Allebach, "Fast Space-Varying Convolution and Its Application in Stray Light Reduction," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging VII*, p. 72460B, vol. 7246, San Jose, CA, 19-20 January 2009.
185. Vaibhav Gaid, Kevin J. Webb, S. Kularatne, and Charles A. Bouman, "Imaging Fluorescence Resonance Energy Transfer in Scattering Media using Optical diffusion Tomography," *2009 Conference on Lasers and Electro-Optics and 2009 Conference on Quantum Electronics and Laser Science Conference, CLEO/QELS 2009*, Baltimore, MD, June 2 - June 4, 2009.
186. Zhou Yu, Jean-Baptiste Thibault, Charles Bouman, Ken Sauer, and Jiang Hsieh, "Edge-Localized Iterative Reconstruction for Computed Tomography," *Fully 3D Reconstruction Meeting*, Beijing, China, Sept. 5-10, 2009.
187. Guangzhi Cao, Charles A. Bouman, and James Theiler, "Weak Signal Detection in Hyperspectral Imagery Using Sparse Matrix Transform (SMT) Covariance Estimation," *Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing, 2009, WHISPERS '09*, Grenoble France, August 26 - August 28, 2009.
188. K. Zeng, B. De Man, J.-B. Thibault, Z. Yu, C. Bouman, and K. Sauer, "Spatial resolution enhancement in CT iterative reconstruction," *Proceedings of the 2009 IEEE Nuclear Science Symposium and Medical Imaging Conference*, pp. 3748-3751, 2009
189. H. Ding, R. Bala, Z. Fan, R. Eschbach, C. A. Bouman, and J. P. Allebach, "Semi-automatic Image Personalization Tool for Variable Text Insertion and Replacement," *Proceedings of SPIE-IS&T Electronic Imaging - Imaging and Printing in a Web 2.0 World*, San Jose CA, vol. 7540, January 19-20, 2010.
190. Hengzhou Ding, Raja Bala, Zhigang Fan, Reiner Eschbach, Charles A. Bouman, and Jan P. Allebach, "Semi-automatic Image Personalization Tool for Variable Text Insertion and Replacement," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging VIII*, San Jose CA, vol. 7533, January 18, 2010.

191. H. Ding, R. Bala, Z. Fan, R. Eschbach, C. A. Bouman, and J. P. Allebach, "Semi-automatic Image Personalization Tool for Variable Text Insertion and Replacement," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging VIII*, San Jose CA, vol. 7533, January 18, 2010.
192. Eri Haneda and Charles A. Bouman, "Multiscale Segmentation for MRC Document Dompersion using a Markov Random Field Model," in the Proceedings of the *International Conference on Acoustic, Speech, and Signal Processing (ICASSP)*, pp. 1042-1045, March 14-19, 2010. doi:10.1109/WHISPERS.2009.5289043
193. Leonardo R. Bachega, Guangzhi Cao, and Charles A. Bouman, "Fast Signal Analysis and Decomposition on Graphs using the Sparse Matrix Transform," in the Proceedings of the *International Conference on Acoustic, Speech, and Signal Processing (ICASSP)*, pp. 5426-5429, March 14-19, 2010. doi:10.1109/ICASSP.2010.5494916
194. Guangzhi Cao, Yandong Guo, and Charles A. Bouman, "High Dimensional Regression using the Sparse Matrix Transform (SMT)," in the Proceedings of the *International Conference on Acoustic, Speech, and Signal Processing (ICASSP)*, March 14-19, 2010. doi:10.1109/ICASSP.2010.5495359
195. James Theiler, Guangzhi Cao, and Charles A. Bouman, "Sparse Matrix Transform for Fast Projection to Reduced Dimension," in the Proceedings of the *International Geoscience and Remote Sensing Symposium (IGARSS)*, pp. 4362-4365, Honolulu, HI, July 30, 2010. doi:10.1109/IGARSS.2010.5652544
196. Leonardo R. Bachega and Charles A. Bouman, "Classification of High-Dimensional Data using the Sparse Matrix Transform," in the Proceedings of the *IEEE International Conference on Image Processing (ICIP 2010)*, pp. 265-268, 2010. doi:10.1109/ICIP.2010.5652690
197. Leonardo R. Bachega, Charles A. Bouman, and James Theiler, "Hypothesis testing in high-dimensional space with the Sparse Matrix Transform," in the Proceedings of the *2010 IEEE Sensor Array and Multichannel Signal Processing Workshop*, pp. 181-184, 2010. doi:10.1109/SAM.2010.5606728
198. Srikanth Hariharan, Leonardo R. Bachega, Ness B. Shroff, and Charles A. Bouman, "Communication efficient signal detection in correlated clutter for wireless sensor networks," *Asilomar Conference on Signals, Systems and Computers*, pp. 1427-1431, 2010. doi:10.1109/ACSSC.2010.5757771
199. Leonardo R. Bachega, Srikanth Hariharan, Charles A. Bouman, and Ness Shroff, "Distributed Signal Decorrelation in Wireless Sensor Networks using the Sparse Matrix Transform," *Proceedings of SPIE Conference on Independent Component Analysis, Wavelets, Neural Networks, Biosystems, and Nanoengineering IX*, vol. 8058, April 27-29, 2011. doi:10.1117/12.887549
200. Hengzhou Ding, Raja Bala, Zhigang Fan, Charles A. Bouman, and Jan P. Allebach, "Personalized Imaging: Moving Closer to Reality," *Proceedings of SPIE-IS&T Electronic Imaging - Imaging and Printing in a Web 2.0 World II*, San Francisco CA, vol. 7879, January 26, 2011.
201. Zhou Yu, Jean-Baptiste Thibault, Jaio Wang, Charles A. Bouman, and Ken D. Sauer, "Kinetic parameter reconstruction for motion compensation in transmission tomography," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging IX*, San Francisco CA, vol. 7873, January 25, 2011.
202. Tak-Shing Wong, Charles A. Bouman, Jean-Baptiste Thibault, and Ken D. Sauer, "Medical Image Enhancement using Resolution Synthesis," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging IX*, San Francisco CA, vol. 7873, January 24, 2011.
203. Jiao Wang, Jean-Baptiste Thibault, Zhou Yu, Ken Sauer, and Charles A. Bouman, "Spectral Design in Markov Random Fields," *AIP Conference Proceedings*, vol. 1305, pp. 451-458, 2011
204. Haitao Xue, Jan P. Allebach, and Charles A. Bouman, "A Color Quantization Algorithm Based on Minimization of L_p Norm Error in a Modified CIELAB Space," *Proceedings of SPIE-IS&T Electronic Imaging - Color Imaging XVII: Displaying, Processing, Hardcopy, and Applications*, San Francisco CA, vol. 8292, January 25, 2012.

205. Animesh Khemka and Charles A. Bouman, "Image Classification and Interpolation," *Proceedings of SPIE-IS&T Electronic Imaging - Image Processing: Algorithms and Systems X*, San Francisco CA, vol. 8295A, January 24, 2012.
206. Sherman J. Kisner and Charles A. Bouman, "Limited View Angle Iterative CT Reconstruction for Transportation Security Application," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging X*, San Francisco CA, vol. 8296, January 23, 2012.
207. Hengzhou Ding, Raja Bala, Zhigang Fan, Charles A. Bouman, and Jan P. Allebach, "Text Replacement on Cylindrical Surfaces: A Semi-Automatic Approach," *Proceedings of SPIE-IS&T Electronic Imaging - Computational Imaging X*, San Francisco CA, vol. 8296, January 24, 2012.
208. Hengzhou Ding, Raja Bala, Zhigang Fan, Charles A. Bouman, and Jan P. Allebach, "Global Image Analysis to Determine Suitability for Text-Based Image Personalization," *Proceedings of SPIE-IS&T Electronic Imaging - Imaging and Printing in a Web 2.0 World III*, San Francisco CA, vol. 8296, January 26, 2012.
209. S. J. Kisner, E. Haneda, C. A. Bouman, S. Skatter, M. Kourinny, and S. Bedford, "Limited View Angle CT Reconstruction," *Proceedings of SPIE-IS&T Electronic Imaging -Computational Imaging X*, vol. 8296, January 23-24, 2012.
210. S. Venkatakrishnan, L. Drummy, M. Jackson, M. De Graef, J. Simmons, and C. Bouman, "Bayesian Tomographic Reconstruction for High Angle Annular Dark Field (HAADF) Scanning Transmission Electron Microscopy (STEM)," *Proceedings of IEEE Statistical Signal Processing Workshop*, August 5-8, 2012.
211. E. Haneda and C. A. Bouman, "Implicit Priors for Model-Based Inversion," *IEEE Int'l Conf. on Acoustics Speech and Signal Processing*, Kyoto Japan, March 30, 2012.
212. R. Zhang, J.-B. Thibault, C. A. Bouman, Ken D. Sauer, and J. Hsieh, "A Model-Based Iterative Algorithm for Dual-Energy X-Ray CT Reconstruction," to appear in the proceedings of the *Second International Conference on Image Formation in X-Ray Computed Tomography*, Salt Lake City, Utah, June 24-27, 2012.
213. Singanallur V. Venkatakrishnan, Lawrence F. Drummy, Michael Jackson, Marc De Graef, Charles A. Bouman, and Jeff Simmons, "Model Based HAADF STEM Tomography," 1st International Conference on 3D Materials Science July 9, 2012.
214. P. Jin, E. Haneda, K. Sauer, and C. A. Bouman, "A Model-Based 3D Multislice Helical CT Reconstruction Algorithm for Transportation Security Application," to appear in the proceedings of the *Second International Conference on Image Formation in X-Ray Computed Tomography*, Salt Lake City, Utah, June 24-27, 2012.
215. Emma Humphrey, Singanallur V. Venkatakrishnan, Charles A. Bouman, and Marc De Graef, "Iterative Vector Field Tomography Reconstructions for Magnetic Nano-materials," Magnetolectric Multiferroic Thin Films and Multilayers symposium, Material Science & Technology 2012.
216. Yandong Guo, Dejan Depalov, Peter Bauer, Brent Bradburn, Jan P. Allebach, and Charles Bouman, "Binary Image Compression using Conditional Entropy-Based Dictionary Design and Indexing," *Proc. SPIE 8652, Color Imaging XVIII: Displaying, Processing, Hardcopy, and Applications*, February 19, 2013.
217. Ruoqiao Zhang, Aaron Chang, Jean-Baptiste Thibault, Ken Sauer, and Charles Bouman, "Statistical modeling challenges in model-based reconstruction for x-ray CT," *Proc. SPIE 8657, Computational Imaging XI, 86570S*, February 19, 2013.
218. S. V. Venkatakrishnan, L. F. Drummy, M. De Graef, J. P. Simmons, C. A. Bouman, "Model based iterative reconstruction for Bright Field electron tomography," *Proc. SPIE 8657, Computational Imaging XI, 86570A* (February 14, 2013); doi:10.1117/12.2013228.

219. Zhou Yu, Lin Fu, Debashish Pal, Jean-Baptiste Thibault, Charles A. Bouman, and Ken D. Sauer, "Nested Loop Algorithm for Parallel Model Based Iterative Reconstruction," proceedings of *The 12th International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, pp. 197-200, Lake Taheo, California, June 16-21, 2013.
220. Ruoqiao Zhang, Jean-Baptiste Thibault, Charles A. Bouman, and Ken D. Sauer, "Soft Classification with Gaussian Mixture Model for Clinical Dual-Energy CT Reconstructions," proceedings of *The 12th International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, pp. 408-401, Lake Taheo, California, June 16-21, 2013.
221. Zhou Yu, Charles A. Bouman, Jean-Baptiste Thibault, and Ken D. Sauer, "Image Grid Invariant Regularization for Iterative Reconstruction," proceedings of *The 12th International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, pp. 517-520, Lake Taheo, California, June 16-21, 2013.
222. Singanallur V. Venkatakrishnan, Charles A. Bouman, and Brendt Wohlberg "Plug-and-Play Priors for Model Based Reconstruction," *Proc. IEEE Global Conference on Signal and Information Processing GlobalSIP*, pp. 945-948, Austin, Texas, December 3-5, 2013.
223. Ruoqiao Zhang, Charles A. Bouman, Jean-Baptiste Thibault, and Ken D. Sauer, "Gaussian Mixture Markov Random Field For Image Denoising And Reconstruction," *Proc. IEEE Global Conference on Signal and Information Processing GlobalSIP*, pp. 1089-1092, Austin, Texas, December 3-5, 2013.
224. Lawrence Drummy, Singanallur Venkatakrishnan, Marc DeGraef, Jeff Simmons, and Charles A. Bouman, "Model-Based Iterative Reconstruction for Multimodal Electron Tomography" accepted at the *Data Analytics for Materials Science and Manufacturing* symposium, 2014 TMS Annual Meeting & Exhibition.
225. Sherman J. Kisner, Pengchong Jin, Charles A. Bouman, Ken Sauer, Walter Garms, Todd Gable, Seungseok Oh, Matthew Merzbacher, and Sondre Skatter, "Innovative Data Weighting for Iterative Reconstruction in Helical CT Security Baggage Scanner," *47th IEEE International Carnahan Conference on Security Technology*, Medellin-Colombia, October 8-11, 2013.
226. Pengchong Jin, Charles A. Bouman, and Ken D. Sauer, "A Method for Simultaneous Image Reconstruction and Beam Hardening Correction," *IEEE Medical Imaging Conference*, Seoul Korea, Oct. 27-Nov. 2, 2013.
227. G. M. Dilshan Godaliyadda, Gregory T. Buzzard, and Charles A. Bouman, "A Model-Based Framework for Fast Dynamic Image Sampling," proceedings of *IEEE International Conference on Acoustics Speech and Signal Processing*, pp. 1822-6, Florence, Italy, May 4-9, 2014.
228. K. Aditya Mohan, S. V. Venkatakrishnan, Lawrence F. Drummy, Jeff Simmons, Dilworth Y. Parkinson, and Charles A. Bouman, "Model-Based Iterative Reconstruction for Synchrotron X-Ray Tomography," proceedings of *IEEE International Conference on Acoustics Speech and Signal Processing*, pp. 6909-13, Florence, Italy, May 4-9, 2014.
229. Leonardo R. Bachega and Charles A. Bouman, "Distributed Vector Decorrelation and Anomaly Detection Using The Vector Sparse Matrix Transform," proceedings of *IEEE International Conference on Acoustics Speech and Signal Processing*, pp. 3410-14, Florence, Italy, May 4-9, 2014.
230. Zhiqian Chang, Ruoqiao Zhang, J.-B. Thibault, K. Sauer, C. Bouman, "Statistical X-ray Computed Tomography Imaging from Photon-Starved Measurements," *Proc. SPIE 9020, Computational Imaging XII*, pp. 90200G, February 5-6, 2014.
231. J. A. Newman, S. Z. Sullivan, R. D. Muir, S. Sreehari, C. A. Bouman, and G. J. Simpson, "Multi-channel Beam-Scanning Imaging at kHz Frame Rates by Lissajous Trajectory Microscopy," *Proceedings of the SPIE - Progress in Biomedical Optics and Imaging*, vol. 9330, pp. 933009 (5 pp.), 2015.

232. F. Sanchez, C. A. Fajardo, C. A. Angulo, O. M. Reyes, and C. A. Bouman, "A Computational Architecture for Discrete Wavelet Transform using Lifting Scheme," *2014 19th Symposium on Image, Signal Processing and Artificial Vision, STSIVA 2014*, January 14, 2015
233. Suhas Sreeharia, S. V. Venkatakrishnan, Lawrence F. Drummy, Jeffrey P. Simmon and Charles A. Bouman "Advanced Prior Modeling for 3D Bright Field Electron Tomography," *Computational Imaging XIII*, vol. 9401, p 940108 (12 pp.), February 11, 2015.
234. Yandong Guo, Yufang Sun, J. P. Allebach, and C. A. Bouman, "Text Line Detection Based on Cost Optimized Local Text Line Direction Estimation," *Proceedings of the IS&T/SPIE Electronic Imaging*, vol. 9395, pp. 939507-939513, Feb. 2015
235. K. A. Mohan, S. V. Venkatakrishnan, J. W. Gibbs, E. B. Gulsoy, X. Xiao, M. De Graef, P. W. Voorhees, C. A. Bouman, "4D model-based iterative reconstruction from interlaced views," in the proceedings of the *IEEE International Conference on Acoustics Speech and Signal Processing*, vol. 2015, pp. 783-787, 2015,
236. S. Sreehari, S. V. Venkatakrishnan, L. F. Drummy, J. P. Simmons and C. A. Bouman, "Rotationally invariant non-local means for image denoising and tomography," in the proceedings of the *IEEE International Conference on Image Processing*, pp. 542-546, September 2015.
237. S. Sreehari, S. V. Venkatakrishnan, L. F. Drummy, J. P. Simmons and C. A. Bouman, "Generations of spatial constraints for electron tomographic reconstruction," *NSRC workshop for Big, Deep, and Smart Data Analytics in Materials Imaging*, June 2015.
238. S. Sreehari, S. V. Venkatakrishnan, J. P. Simmons, L. F. Drummy, and C. A. Bouman, "Non-local Prior Modeling for Tomographic Reconstruction of Bright Field Transmission Electron Microscopy Images," *Microscopy and Microanalysis (M&M '15)*, August 2015.
239. Pengchong Jin, Dong Hye Ye and Charles A. Bouman, "Joint Metal Artifact Reduction and Segmentation of CT Images using Dictionary-Based Image Prior and Continuous-Relaxed Potts Model," in the proceedings of the *IEEE International Conference on Image Processing*, pp. 798-802, Sept. 2015. (ICIP 2015, "Best Paper Award (2nd place)")
240. Dennis J. Lee, Charles A. Bouman, and Andrew M. Weiner, "Single Shot Digital Holography Using Iterative Reconstruction with Alternating Updates of Amplitude and Phase," *Computational Imaging XIV at IS&T Electronic Imaging Symposium* DOI: 10.2352/ISSN.2470-1173.2016.19.COIMG-158, vol. 6, pp. 1-6, Feb. 2016.
241. G. M. Dilshan Godaliyadda, Dong Hye Ye, Michael D. Uchic, Michael A. Groeber, Gregory T. Buzzard, and Charles A. Bouman, "A Supervised Learning Approach for Dynamic Sampling," *Computational Imaging XIV at IS&T Electronic Imaging Symposium* DOI: 10.2352/ISSN.2470-1173.2016.19.COIMG-153, vol. 8, pp. 1-8, Feb. 2016.
242. H. Almansouri, D. Clayton, R. Kisner, Y. Polsky, C. Bouman, and H. Santos-Villalobos, "Development of acoustic model-based iterative reconstruction technique for thick-concrete imaging," *AIP Conference Proceedings*, vol. 1706, p. 020013 (9 pp.), 10 Feb. 2016.
243. X. Wang, S. J. Kisner, C. A. Bouman, and S. P. Midkiff, "Fast Voxel Line Update For Time-Space Image Reconstruction," to appear in the *41st IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2016)*, March 20-25, 2016.
244. Venkatesh Sridhar, Sherman J. Kisner, Sondre Skatter, and Charles A. Bouman, "Model-Based Reconstruction for X-ray Diffraction Imaging," in the *Proc. SPIE*, vol. 9847, pp. 98470K-98470K-11, April 17, 2016.
245. Xiao Wang, K. Aditya Mohan, Sherman J. Kisner, Charles Bouman, and Samuel Midkiff, "Fast voxel line update for time-space image reconstruction," in the proceedings of the *IEEE International Conference on Acoustics Speech and Signal Processing*, pp. 1209-1213, March 20-25, 2016.

246. M. Usman Sadiq, Jeff P. Simmons, and C. A. Bouman, "Model Based Image Reconstruction with Physics Based Priors," *IEEE International Conference on Image Processing*, pp. 3176-9, August 2016.
247. K. Aditya Mohan, Xianghui Xiao, Charles A. Bouman, "Direct Model-Based Tomographic Reconstruction of the Complex Refractive Index," *IEEE International Conference on Image Processing*, pp. 3176-9, August 2016.
248. Jing Li, Dong Hye Ye, Timothy Chung, Mathias Kolsch, Juan Wachs, and Charles Bouman, "Multi-Target Detection and Tracking from a Single Camera in Unmanned Aerial Vehicles (UAVs)," *2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* Daejeon, Korea, October 9-14, 2016.
249. Casey J. Pellizzari and Charles A. Bouman, "Inverse synthetic aperture LADAR image construction: An inverse model-based approach," *Proceedings of SPIE Unconventional Imaging and Wavefront Sensing XII*, doi:10.1117/12.2236133, vol. 9982, Aug. 2016.
250. Haonan Lin, Chien-Sheng Liao, Pu Wang, Kai-Chih Huang, Charles A. Bouman, Nan Kong, and Ji-Xin Cheng, "Sparsely-sampled hyperspectral stimulated Raman scattering microscopy: a theoretical investigation," *em Proc. SPIE 10069, Multiphoton Microscopy in the Biomedical Sciences XVII*, vol. 1006912, Feb. 21, 2017.
251. H. Almansouri, C. Johnson, D. Clayton, Y. Polsky, C. Bouman, and H. Santos-Villalobos, "Progress implementing a model-based iterative reconstruction algorithm for ultrasound imaging of thick concrete," *AIP Conference Proceedings*, vol. 1806, pp. 020016-020015, 16 Feb. 2017
252. Dong Hye Ye, Somesh Srivastava, Jean-Baptiste Thibault, Ken D. Sauer, and Charles A. Bouman, "ROI reconstruction for model based iterative reconstruction (MBIR) via a coupled dictionary learning," *Proc. SPIE 10132, Medical Imaging 2017: Physics of Medical Imaging*, doi:10.1117/12.2248087, vol. 101322R, March 9, 2017.
253. A. C. Geiger, J. A. Newman, S. Sreehari, S. Z. Sullivan, C. A. Bouman, and G. J. Simpson, "Sparse Sampling Image Reconstruction in Lissajous Trajectory Beam-Scanning Multiphoton Microscopy," in the proceedings of the SPIE conference on *High-Speed Biomedical Imaging and Spectroscopy: Toward Big Data Instrumentation and Management II*, doi:10.1117/12.2253514, vol. 10076, Feb. 2017.
254. Haonan Lin, Chien-Sheng Liao, Pu Wang, Kai-Chih Huang, Charles A. Bouman, Nan Kong, and Ji-Xin Cheng "Sparsely-Sampled Hyperspectral Stimulated Raman Scattering Microscopy: A Theoretical Investigation," in the proceedings of the SPIE conference on *Multiphoton Microscopy in the Biomedical Sciences XVII*, doi:10.1117/12.2256936, vol. 10069, Feb. 2017.
255. Suhas Sreehari, S. V. Venkatakrisnan, Katherine L. Bouman, Jeffrey P. Simmons, Lawrence F. Drummy, and Charles A. Bouman "Multi-Resolution Data Fusion for Super-Resolution Electron Microscopy," arXiv:1612.00874, at NITIRE 2017 at CVPR 2017.

Technical Reports:

1. C. Bouman, "A Multiscale Image Model for Bayesian Image Segmentation," Technical Report TR-EE-91-53, School of Electrical Engineering, Purdue University, December 1991.
2. C. Bouman and K. Sauer, "A Generalized Gaussian Image Model for Edge-Preserving MAP Estimation," Technical Report TR-EE-92-1, School of Electrical Engineering, Purdue University, January 1992.
3. S. S. Saquib, C. A. Bouman, and K. Sauer. "ML Parameter Estimation for Markov Random Fields, with Applications to Bayesian Tomography," Technical Report TR-ECE 95-24, School of Electrical and Computer Engineering, Purdue University, October 1995.
4. T. Frese, C. A. Bouman, and J. P. Allebach, "A Methodology for Designing Image Similarity Metrics Based on Human Visual System Models," Technical Report TR-ECE 97-2, School of Electrical and Computer Engineering, Purdue University, February 1997.

5. I. Pollak, J. M. Siskind, M. P. Harper, C. A. Bouman "Spatial Random Trees and the Center-Surround Algorithm," Technical Report TR-ECE-03-03, School of Electrical and Computer Engineering, Purdue University, January 2003.
6. "Covariance Estimation for High Dimensional Data Vectors Using the Sparse Matrix Transform," Technical Report TR-ECE-08-05, School of Electrical and Computer Engineering, Purdue University, April 2008.
7. "Implicit Priors for Model-Based Inversion," Technical Report TR-ECE-11-18, School of Electrical and Computer Engineering, Purdue University, September 2011.

US Issued Patents:

1. Charles A. Bouman, Jr., and Michael T. Orchard, "Color Image Display with a Limited Palette Size," United States Patent 5,047,842, September 10, 1991.
2. Thyagarajan Balasubramanian, Charles A. Bouman, Jan P. Allebach, and Bernd W. Kolpatzik, "Sequential Scalar Quantization of Digital Image Using Mean Squared Error-Minimizing Quantizer Density Function," United States Patent 5,432,893, July 11, 1995. (Licensed to Kodak)
3. Jan P. Allebach, Charles A. Bouman, and Thyagarajan Balasubramanian, "Sequential Product Code Quantization of Digital Color Image," United States Patent 5,544,284, August 6, 1996. (Licensed to Kodak)
4. Brian Atkins, Charles A. Bouman, Jan P. Allebach, Jay S. Gondek, Morgan T. Schramm, and Frank W. Sliz, "Computerized method for improving data resolution," United States Patent 6,058,248, May 2, 2000. (Licensed to Hewlett-Packard)
5. Brian Atkins, Charles A. Bouman, Jan P. Allebach, Jay S. Gondek, Morgan T. Schramm, and Frank W. Sliz, "Computerized method for improving data resolution" United States Patent 6,075,926, June 13, 2000. (Licensed to Hewlett-Packard)
6. C. Brian Atkins, Charles A. Bouman, Jan P. Allebach, "Apparatus and Method of Building an Electronic Database for Resolution Synthesis," United States Patent 6,466,702, issued October 15, 2002. (Licensed to Hewlett-Packard)
7. C. Brian Atkins, Charles A. Bouman, Jan P. Allebach, "Apparatus and Method of Building an Electronic Database for Resolution Synthesis," United States Patent 6,683,998, issued January 27, 2004. (Licensed to Hewlett-Packard)
8. J. Hsieh, J.-B. Thibault, C. A. Bouman, and K. Sauer, "An Iterative Method for Region-of-Interest Reconstruction," United States Patent 6,768,782, issued July 27, 2004. (Licensed to General Electric Corporation)
9. K. Sauer, C. A. Bouman, J.-B. Thibault, and J. Hsieh, "Iterative Reconstruction Methods for Multi-Slice CT," United States Patent 6,907,102, June 14, 2005. (Licensed to General Electric Corporation)
10. Z. He and C. A. Bouman, "Combined Dot Density and Dot Size Modulation," United States Patent 7,031,025, April 18, 2006. (Licensed to Hewlett-Packard)
11. Peter G. Anderson, Charles A. Bouman, and Changmeng Liu, "Methods, Devices, and Systems for Compressing Images," United States Patent 7,245,778, July 17, 2007. (Licensed to Hewlett-Packard)
12. K. D. Sauer, J.-B. Thibault, C. A. Bouman, and J. Hsieh, "Methods, Apparatus, and Software to Facilitate Iterative Reconstruction of Images," (System Point Spread Function Modeling and Estimation for Iterative Multislice Helical CT Image Reconstruction), United States Patent 7,251,306, July 31, 2007. (Licensed to General Electric Corporation)

13. J.-B. Thibault, K. D. Sauer, C. A. Bouman, and J. Hsieh, "Methods, Apparatus, and Software to Facilitate Computing the Elements of a Forward Projection Matrix," (Accurate Geometric Forward Modeling for Iterative Image Reconstruction), United States Patent 7,272,205, September 18, 2007. (Licensed to General Electric Corporation)
14. Guotong Feng, Michael Fuchs, and Charles A. Bouman "Translation of an Input Pixel Value to an Output Pixel Value," United States Patent 7,301,674, November 27, 2007. (Licensed to Hewlett-Packard)
15. C. A. Bouman, K. D. Sauer, J. Hsieh, and J.-B. Thibault, "Methods, Apparatus, and Software for Reconstructing an Image," (Non-Quadratic Regularization Applied to Iterative Multislice CT), United States Patent 7,308,071, December 11, 2007. (Licensed to General Electric Corporation)
16. Guotong Feng, Michael Fuchs, and Charles A. Bouman, "Transforming an Input Image to Produce an Output Image," United States Patent 7,312,898, December 25, 2007. (Licensed to Hewlett-Packard)
17. K. D. Sauer, J.-B. Thibault, C. A. Bouman, and J. Hsieh, "Method, Apparatus, and Software for Reconstructing an Image," (2.5D Reconstruction), United States Patent 7,327,822, February 5, 2008. (Licensed to General Electric Corporation)
18. Guotong Feng, Michael G. Fuchs, and Charles A. Bouman, "Transformation of an Input Image to Produce an Output Image," (Different from item 16.) United States Patent 7,336,400, February 26, 2008. (Licensed to Hewlett-Packard)
19. J. Hsieh, C. A. Bouman, K. D. Sauer, and J.-B. Thibault, "Methods, Apparatus, and Software for Failed or Degraded Components," (Iterative Reconstruction Algorithm for Defective Projection Samples), United States Patent 7,440,602, October 21, 2008. (Licensed to General Electric Corporation)
20. Zhen He, Ti-chiun Chang, Charles A. Bouman, and Jan P. Allebach, "Image Data Processing Methods, Hard Imaging Devices, and Articles of Manufacture," United States Patent 7,450,270, November 11, 2008. (Licensed to Hewlett-Packard)
21. Zhen He and Charles A. Bouman, "Halftoning Method and System," United States Patent 7,511,857, January 26, 2009. (Licensed to Hewlett-Packard)
22. J. Hsieh, J.-B. Thibault, K. D. Sauer, and C. A. Bouman, "Method and System for Improving a Resolution of an Image," United States Patent 7,583,780, September 1, 2009. (Licensed to General Electric Corporation)
23. K. D. Sauer, C. A. Bouman, J. Hsieh, and J.-B. Thibault, "Systems and Methods for Filtering Data in Medical Imaging Systems," (Mean Preserving Filter Patent), United States Patent 7,676,074, March 9, 2010. (Licensed to General Electric Corporation)
24. Hyung-Soo Ohk, Jonghyon Yi, Charles A. Bouman, and Maribel Figuera, "Apparatus and Method of Dynamically Caching Symbols to Manage a Dictionary in a Text Coding and Decoding System," United States Patent 7,724,164. May 25, 2010. (Licensed to Samsung Electronics Corporation)
25. K. D. Sauer, C. A. Bouman, J. Hsieh, and J.-B. Thibault, "Method and System for Image Reconstruction," (Hybrid Reconstruction), United States Patent 7,885,371. February 8, 2011. (Licensed to General Electric Corporation)
26. Hyung-Soo Ohk, Jonghyon Yi, Charles A. Bouman, and Eri Haneda, "Apparatus and Method of Segmenting an Image and/or Receiving a Signal Representing the Segmented Image in an Image Coding and/or Decoding System," United States Patent 7,899,247. March 1, 2011. (Licensed to Samsung Electronics Corporation)
27. Hyung-Soo Ohk, Jonghyon Yi, Charles A. Bouman, and Maribel Figuera, "Apparatus and Method of Matching Symbols in a Text Imaging Coding and Decoding System," United States Patent 7,907,783. March 15, 2011. (Licensed to Samsung Electronics Corporation)

28. K. D. Sauer, C. A. Bouman, J. Hsieh, and J.-B. Thibault, "Methods and Systems for Improving Quality of an Image," United States Patent 7,983,462. July 19, 2011. (Licensed to General Electric Corporation)
29. Charles A. Bouman, Ken D. Sauer, Jean-Baptiste Thibault, and Zhou Yu, "Methods and System for Image Reconstruction," United States Patent 8,135,186. March 13, 2012. (Licensed to General Electric Corporation)
30. Jean-Baptiste Thibault, Jiang Hsieh, Bruno De Man, Samit Basu, Zhou Yu, C. A. Bouman, Ken D. Sauer, "Method and System for Iterative Reconstruction," (Nonhomogeneous ICD), United States Patent 8,175,115. May 8, 2012. (Licensed to General Electric Corporation)
31. Jiang Hsieh, Charles A. Bouman, Ken D. Sauer, and Jean-Baptiste Thibault, "Methods and Systems to Facilitate Correcting Gain Fluctuations in Image Reconstruction," (DC gain correction) United States Patent 8,218,715. July 10, 2012. (Licensed to General Electric Corporation)
32. Jeffery A. Fessler, Charles A. Bouman, Jiang Hsieh, Jean-Baptiste D. M. Thibault, Ken D. Sauer, Samit K. Basu, and Bruno K. B. DeMan, "Methods and Systems for Improving Spatial and Temporal Resolution of Computed Images of Moving Objects," United States Patent Application 20080304726. United States Patent 8,233,682. July 31, 2012. (Licensed to General Electric Corporation)
33. Hyung-Soo Ohk, Jonghyon Yi, Charles A. Bouman, and Eri Haneda, "Apparatus and Method of Segmenting an Image in an Image Coding and/or Decoding System," United States Patent 8,254,680. August 28, 2012. (Licensed to Samsung Electronics Corporation)
34. Hyung-Soo Ohk, Jonghyon Yi, Charles A. Bouman, and Maribel Figuera, "Apparatus and Method of Dynamically Caching Symbols to Manage a Dictionary in a Text Image Coding and Decoding System," United States Patent 8,300,963. October 30, 2012. (Licensed to Samsung Electronics Corporation)
35. Jean-Baptiste Thibault, Zhou Yu, Jiao Wang, Ken D. Sauer, and Charles A. Bouman, "System and Method of Iterative Image Reconstruction for Computed Tomography," (large neighborhood prior) United States Patent 8,416,914. April 9, 2013. (Licensed to General Electric Corporation)
36. Tae-yoon Hwang, Yousun Bang, Charles A. Bouman, and Eri Haneda, "Image Processing Apparatus and Image Processing Method Thereof," United States Patent 8,451,510. May 28, 2013. (Licensed to Samsung Electronics Corporation)
37. Raja Bala, Reiner Eschbach, Zhigang Fan, Jan P. Allebach, Charles A. Bouman, and Hengzhou Ding, "Rendering Personalized text on Curved Image Surfaces," United States Patent 8,619,074. December 31, 2013. (Licensed to Xerox Corporation)
38. Kai Zeng, Charles A. Bouman, Bruno De Man, Jiang Hsieh, Ken D. Sauer, Jean-Baptiste Thibault, and Zhou Zhou "Iterative Reconstruction," United States Patent 8,655,033. February 18, 2014. (Licensed to General Electric)
39. Raja Bala, Reiner Eschbach, Zhigang Fan, Jan P. Allebach, Charles A. Bouman, Hengzhou Ding, and Geoffrey J. Woolfe, "Systems and Methods for Text-Based Personalization of Images," United States Patent 8,780,131. July 15, 2014. (Licensed to Xerox Corporation)
40. Jean-Baptiste Thibault, Bruno Kristiaan Bernard De Man, Kai Zeng, Zhou Yu, Charles A. Bouman, and Ken D. Sauer, "System and Method of Iterative Image Reconstruction for Computed Tomography," United States Patent 8,787,521. July 22, 2014. (Licensed to General Electric Corporation)
41. Hyung-Soo Ohk, Jonghyon Yi, Charles A. Bouman, and Eri Haneda, "Apparatus and Method of Segmenting an Image and/or Receiving a Signal Representing the Segmented Image in an Image Coding and/or Decoding System," United States Patent 8,798,396. August 5, 2014. (Licensed to Samsung Electronics Corporation)

42. Raja Bala, Zhigang Fan, Jan P. Allebach, Charles A. Bouman, and Hengzhou Ding, “Automatic Detection and Grouping of Straight Lines in Images for Personalization,” United States Patent 8,805,056. August 12, 2014. (Licensed to Xerox Corporation)
43. Raja Bala, Zhigang Fan, Jan P. Allebach, Charles A. Bouman, and Hengzhou Ding, “Finding Text in Natural Scenes,” United States Patent 8,837,830. September 16, 2014. (Licensed to Xerox Corporation)
44. Zhou Yu, Bruno De Man, Jean-Baptiste Thibault, Debashish Pal, Lin Fu, Charles A. Bouman, Ken Sauer, Sathish Ramani, Jeffrey A. Fessler, and Somesh Srivastava, “Method and Apparatus for Iterative Reconstruction,” United States Patent 8,885,975. November 11, 2014. (Licensed to General Electric Corporation)
45. Jean-Baptiste Thibault, Charles A. Bouman, Jr., Ruoqiao Zhang, Jiang Hsieh, Ken David Sauer, “Methods and Systems for Performing Model-Based Iterative Reconstruction,” United States Patent 8,923,583. December 30, 2014. (Licensed to General Electric Corporation)
46. Zhou Yu, Evgeny Drapkin, Bruno Kristiaan Bernard De Man, Jean-Baptiste Thibault, Kai Zeng, Jiang Hsieh, Brian Edward Nett, Debashish Pal, Lin Fu, Guangzhi Cao, Charles A. Bouman, Jr., and Ken David Sauer. “Method and Apparatus for Iterative Reconstruction,” United States Patent 9,020,230. April 28, 2015. (Licensed to Xerox Corporation)
47. Dejan Depalov, Peter Bauer, Charles A. Bouman, Jan Allebach, and Yandong Guo “Symbol Compression using Conditional Entropy Estimation,” United States Patent 9,020,262. April 28, 2015. (Licensed to Xerox Corporation)
48. Raja Bala, Zhigang Fan, Hengzhou Ding, Jan P. Allebach, Charles A. Bouman, and Reuven J. Sherwin, “Methods and System for Analyzing and Rating Images for Personalization,” United States Patent 9,042,640. May 26, 2015. (Licensed to Xerox Corporation)
49. Jean-Baptiste Thibault, Xue Rui, Somesh Srivastava, Ken David Sauer, Lin Fu, and Charles A. Bouman Jr., “System and Method of Iterative Image Reconstruction for Computed Tomography,” United States Patent 9,261,467. February 16, 2016. (Licensed to General Electric Corporation)
50. Jean-Baptiste Thibault, Debashish Pal, Jie Tang, Ken David Sauer, Charles Bouman, and Ruoqiao Zhang, “Systems and Methods for Guided De-noising for Computed Tomography,” United States Patent 9,460,485. October 4, 2016. (Licensed to General Electric Corporation)
51. Jean-Baptiste Thibault, Ruoqiao Zhang, Charles Bouman, and Ken Sauer, “Methods and Systems for Performing Model-Based Image Processing,” United States Patent 9,466,136. October 11, 2016. (Licensed to General Electric Corporation)
52. Zhou Yu, Bruno Kristiaan Bernard De Man, Jean-Baptiste Thibault, Debashish Pal, Lin Fu, Charles A. Bouman, Jeffrey Allen Fessler, and Hung Nien, “Accelerated Iterative Reconstruction,” United States Patent 9,508,163. November 29, 2016. (Licensed to General Electric Corporation)

Editorial Positions:

Organization: IEEE

Activity: Associate Editor of IEEE Transactions on Image Processing
1993 to 1997

Organization: IEEE

Activity: Associate Editor of IEEE Transactions on Pattern Analysis
and Machine Intelligence
1999 to 2002

Organization: SPIE/IS&T

Activity: Guest Editor of *Journal of Electronic Imaging*
Special Issue on “Imaging Through Scattering Media”
2003

Organization: IEEE
 Activity: Editor in Chief of the *IEEE Transactions on Image Processing*
 1/1/2007-12/31/2009

Organization: IEEE
 Activity: Guest Editor of *Signal Processing Magazine*
 Special Issue on “Medical Imaging”
 2010

Organization: SIAM
 Journal on Imaging Sciences
 Activity: Associate Editor
 2017 - 2018

Professional Society Activities:

Organization: National Academies of Science and Engineering
 Activity: Member of panel to study Improvised Explosive Devices
 2005 to 2008

Organization: IEEE
 Activity: Member
 1986 to 1997

Organization: IEEE
 Activity: Chaired session entitled “Random Fields & Texture Analysis”
 at ICASSP '92
 March 1992

Organization: IEEE
 Activity: Chaired session entitled “Image Scanning/Color/Halftoning”
 at ICASSP '93
 April 1993

Organization: IEEE Signal Processing Chapter for Central Indiana Section
 Activity: Chairman
 1989 to 1993
 Activity: Vice Chairman
 1993 to 1997

Organization: IEEE International Conference on Image Processing (ICIP)
 Activity: Co-Organizer with Jan Allebach of special session entitled
 “Electronic Imaging and Model-Based Methods: From Content to User”
 November 13-16, 1994

Organization: IEEE Signal Processing Society
 Image and Multidimensional Digital Signal
 Processing (IMDSP) Technical Committee
 Activity: Member
 1995 to 2001 and 2007-2009

Organization: IEEE Signal Processing Society
 Education Committee
 Activity: Member
 1995 to 2002

Organization: IEEE Signal Processing Society/IS&T
 Organizing Committee of the Ninth Image and Multidimensional Signal
 Processing (IMDSP) Workshop
 Activity: Publicity and Registration
 March 1996

Organization: IEEE

Activity: Senior Member
1997 to 2000

Organization: IEEE Signal Processing Society/IS&T
Organizing Committee of the Tenth Image and Multidimensional Signal
Processing (MDSP) Workshop

Activity: North American Liaison
July 1997

Organization: IEEE/EURASIP
Workshop on Nonlinear Signal and Image Processing

Activity: Co-organized invited session entitled “Nonlinear Methods for Inverse Problems”
September 1997

Organization: IEEE

Activity: Chaired session entitled “Image/Video Segmentation”
at ICIP '97
October 1997

Organization: IEEE Signal Processing Society
Organizing Committee of International Conference on Image Processing

Activity: Chair of the Awards Committee for ICIP '98
1997 to 1998

Organization: IEEE
Asilomar '98 Conference

Activity: Organized invited session on “Models in Imaging and Tomography”
1998

Organization: IEEE

Activity: Fellow
2000 to present

Organization: IEEE Signal Processing Society
Biomedical Image and Signal
Processing (BISP) Technical Committee

Activity: Member and Secretary
2004 - 2006

Organization: IEEE
Signal Processing Society

Activity: Member of Biomedical Imaging and Signal Processing Technical Committee
2004-2008

Organization: IEEE
IEEE Trans. Medical Imaging

Activity: Member of Steering Committee
2004-2006

Organization: IEEE
International Conference in Acoustics Speech and Sig. Proc.

Activity: Organized Special Session on Molecular Imaging
2005

Organization: IEEE
International Symposium on Biomedical Imaging (ISBI)

Activity: Organized Special Session on “Model Based Imaging”
2007

Organization: IEEE
Signal Processing Society

Activity: Member of Board of Governors
1/2009-12/2011 and 1/2013 - 12/2015

- Organization: IEEE
Signal Processing Society
Activity: Distinguished Lecturer
1/2009-12/2010
- Organization: IEEE
GlobalSIP(ISBI)
Activity: Founding Technical Co-Chair
2013
- Organization: IEEE
Signal Processing Society
Activity: Vice President for Technical Directions
1/2013-12/2015
- Organization: IEEE
Signal Processing Society
Activity: Member of Technical Liaison Committee for Trans. on Computational Imaging
1/2014-present
- Organization: SPIE (Society of Photo-Optical Instrumentation Engineers)
Activity: Member
1988 to present
- Organization: SPIE/IS&T
Electronic Imaging Symposium '99
Activity: Co-Chair of Conference on
"Storage & Retrieval for Image and Video Databases VII"
1999
- Organization: SPIE/IS&T
Electronic Imaging Symposium '00
Activity: Co-Chair of Conference on
"Storage and Retrieval for Media Databases 2000"
2000
- Organization: SPIE/IS&T
Electronic Imaging Symposium '01
Activity: Co-Chair of Conference on
"Visual Communications and Image Processing 2001"
2001
- Organization: SPIE/IS&T
Electronic Imaging Symposium '03
Activity: Founder and Chair of Conference on
"Computational Imaging"
2003 through 2017
- Organization: SPIE/IS&T
Electronic Imaging Symposium '06
Activity: General Co-Chair of Symposium
2006
- Organization: SPIE/IS&T
Electronic Imaging Symposium 2007 and 2008
Activity: Symposium Organizing Committee
2006 - 2008
- Organization: SPIE (Society of Photo-Optical Instrumentation Engineers)
Activity: Fellow
2008 to present
- Organization: IS&T (Imaging Science and Technology)

Activity: Member
1991 to present

Organization: IS&T (Imaging Science and Technology)
Activity: Fellow
2005 to present

Organization: IS&T (Imaging Science and Technology)
1995 Honors & Awards Committee
Activity: Member
1995

Organization: IS&T (Imaging Science and Technology)
Board of Directors
Activity: Vice President of Publications
2000 to 2004

Electrical and Computer Engineering Committee Activities:

Committee: Curriculum Committee, EE, Purdue
Activity: Member
1992 to 1996

Committee: Social Committee, EE, Purdue
Activity: Member
1992 to 1993

Committee: Graduate Committee, ECE, Purdue
Activity: Member
1996 to 1999

Committee: Graduate Admissions Committee, ECE, Purdue
Activity: Member
1997 to 1999; 2001-2002

Committee: Communications and Signal Processing Area, ECE, Purdue
Activity: Area Chair
1998 to 2000

Committee: Qualifying Exam Committee, ECE, Purdue
Activity: BE Area Representative
2000 to 2002

Committee: Information, Communications, and Perception Technologies (ICPT) Cluster
Activity: Member
2004-2005

Committee: Biomedical Imaging and Sensing (BIS), ECE, Purdue
Activity: Area Chair
2006 to 2012

Committee: Communications, Networking, Signal and Image Processing (CNSIP)
Faculty Search Committee, ECE, Purdue
Activity: Chair
2008 to 2011

Biomedical Engineering Committee Activities:

Committee: Graduate Admissions Committee, BME, Purdue
Activity: Chair
2002 to 2004

Committee: Primary Committee, BME, Purdue
Activity: Member

2003 to present
 Committee: Imaging Facilities Committee, BME, Purdue
 Activity: Chair
 2007 to present
 Committee: Departmental Review Committee, BME, Purdue
 Activity: Member
 2008
 Committee: Awards Committee, BME, Purdue
 Activity: Member
 2015
 Committee: Imaging Area, BME, Purdue
 Activity: Chair
 2016-present

Engineering-Wide Committee Activities:

Committee: Academic Personnel Grievance Committee, Purdue University
 Activity: Member
 1992 to 1994
 Committee: Ad-Hoc Committee on Tenure Promotion Procedures and Processes, Engineering, Purdue University
 Activity: Member
 2003 to 2004

University-Wide Committee Activities:

Committee: Integrated Imaging Cluster Search Committee
 Activity: Chair
 2012 to 2016
 Committee: University Senate
 Activity: Member
 2005 to 2008

Invited Lectures:

1. "A Multiple Resolution Approach to Image Segmentation and Analysis," AT&T Bell Laboratories, Murray Hill, NJ, June. 1988.
2. C. A. Bouman, "Image Segmentation Using Spatial Context," US Army Construction Engineering Research Laboratory, Champaign, IL, June 18, 1990.
3. C. A. Bouman, "Statistical Approaches to the Reconstruction of Images from Integral Projections," University of Illinois, Department of Electrical Engineering, Urbana, IL, March 6, 1991.
4. C. A. Bouman, "Model Based Image Analysis, " NEC Central Research Laboratories, Tokyo, Japan, October 22, 1991.
5. C. A. Bouman, "Multiresolution Image Segmentation Using Statistical Models, " Purdue University, Department of Psychology, West Lafayette IN, November 15, 1991.
6. C. A. Bouman, "Optimized Error Diffusion Based on a Human Visual Model," Hewlett-Packard Laboratories, Palo Alto, CA, February 14, 1992.
7. C. A. Bouman, "Statistical Approaches to the Reconstruction of Images from Integral Projections," Illinois Institute of Technology, Department of Electrical Engineering, Chicago, IL, February 28, 1992.
8. C. A. Bouman, "New Results in Color Image Quantization," IBM Almaden Research Center, San Jose, CA, March 25, 1992.

9. C. A. Bouman, "Multiscale Algorithms for Image Segmentation and Object Detection," NEC Central Research Laboratories, Tokyo, Japan, October 20, 1992.
10. C. A. Bouman, "Color Palette Design for Error Diffusion," PictureTel, Danvers, Massachusetts, May 13, 1993.
11. C. A. Bouman, "Sequential Scalar Processing for the Quantization and Transformation of Color Vectors," Xerox Palo Alto Research Center, February 11, 1994.
12. C. A. Bouman, "Data Collection for Better Color," Apple Computers, Inc. 1994 ATG External Research Open House, May 9, 1994.
13. C. A. Bouman, "Multiscale Stochastic Models for Image Segmentation and Analysis," Xerox, Webster Research Center, May 17, 1994.
14. C. A. Bouman, "Bayesian Image Rendering and Interpolation," Hewlett-Packard Laboratories, Palo Alto, CA, June 8, 1995.
15. C. A. Bouman, "Recent Work in Resolution Synthesis," Hewlett-Packard Laboratories, Palo Alto, CA, January 31, 1996.
16. C. A. Bouman, "Contextual Document Segmentation Using Multiscale Models," Xerox, Webster Research Center, April 12, 1996.
17. C. A. Bouman, "Contextual Document Segmentation Using Multiscale Models," Laboratoire des Signaux et Systemes (LSS), Ecole Superieure d'Electricite (Supelec) Plateau de Moulon, France, September 23, 1996.
18. C. A. Bouman, "Models and Algorithms for Efficient Search of Large Image Databases," Second Annual Session on University Research in Imaging, San Jose, CA, February 10, 1997.
19. C. A. Bouman, "Contextual Document Segmentation Using Multiscale Models," Xerox Impact Imaging Systems, Palo Alto, CA, February 14, 1997.
20. C. A. Bouman, "Fast and Flexible Methods for Bayesian Tomography," General Electric Corporate Research and Development, Schenectady, NY, August 9, 1997.
21. C. A. Bouman, "Bayesian Models in Tomography and Imaging," University of Illinois, Urbana IL, October 16, 1997.
22. C. A. Bouman, "Bayesian Models in Imaging Applications," Halliburton Lecture Series, presented at Texas Tech University, Lubbock, TX, June 3, 1998.
23. C. A. Bouman, "Image and Video Database Search and Browsing," University of Notre Dame, South Bend, IN, November 10, 1998.
24. C. A. Bouman, "Image and Video Database Search and Browsing," Brown University, Providence, RI, November 18, 1998.
25. C. A. Bouman, "Bayesian Models in Tomography and Imaging," Massachusetts Institute of Technology, Stochastics Systems Group, Cambridge, MA, November 19, 1998.
26. C. A. Bouman, "Hierarchical and Stochastic Models in Imaging," University of Illinois, Urbana IL, March 10, 1999.
27. C. A. Bouman, "Iterative Image Reconstruction for Transmission Tomography," General Electric Medical Systems, Milwaukee, WI, February 13, 2001.
28. C. A. Bouman, "Imaging in Scattering Media: The Magic of Computational Inverse Methods," Drexel University, Philadelphia PA, February 15, 2002.

29. C. A. Bouman, "Deep Tissue Imaging with Light: The Magic of Computational Inverse Methods in Biomedical Imaging," University of Virginia Department of Electrical and Computer Engineering, *Eminent Speaker Series*, Charlottesville VA, November 12, 2004.
30. C. A. Bouman, "Deep Tissue Imaging with Light," *Workshop on Bayesian Inference and Functional Brain Mapping*, Center for Research in Mathematics University of Montreal Montreal, Canada, March 31, 2005.
31. C. A. Bouman, "Trends in Computational Imaging: The Marriage of Sensors, Processors, and Algorithms to Solve Problems," GE Global Research Center, Niskayuna NY, December 13, 2006.
32. C. A. Bouman, "Iterative Image Reconstruction Without the Iterations," University of Illinois at Chicago, Chicago Illinois, October 11, 2007.
33. C. A. Bouman, "Iterative Image Reconstruction Without the Iterations," Illinois Institute of Technology, Chicago Illinois, November 30, 2007.
34. C. A. Bouman, "Grand Challenge Problems in Digital Imaging," *2007-2008 Research Colloquium* series of the Department of Electrical Engineering, University of Washington. Seattle Washington, March 6, 2008.
35. C. A. Bouman, "Intelligent Methods for Processing and Rendering Images," Plenary Lecture, *2008 IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, NM, March 25, 2008.
36. C. A. Bouman, "Statistical Image Reconstruction: The Challenges and Potential," University of Wisconsin Milwaukee, Milwaukee Wisconsin, September 9, 2008.
37. C. A. Bouman, "The Growing Need for Image Interpretation in Medical and Neuro-Imaging," invited talk at the *Howard Hughes Medical Institute (HHMI) Janelia Farm* conference entitled *What Can Computer Vision Do for Neuroscience and Vice Versa?* September 16, 2008.
38. C. A. Bouman, "Advanced Image Segmentation in Materials Science Workshop," invited talk at the *Advanced Image Segmentation in Materials Science Workshop*, Carnegie Mellon University, November 11, 2008.
39. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," *ECE - Distinguished Lecturer Series*, Northeastern University, November 20, 2008.
40. C. A. Bouman, "Sparse Transforms for Time Varying and Nonstationary Signals," invited talk at Harvard University School of Engineering and Applied Science, December 5, 2008.
41. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," invited talk at Carnegie Mellon University, Electrical & Computer Engineering, February 26, 2009.
42. C. A. Bouman, "Model Based Sensing: The Integration of Algorithms and Sensing to Solve Problems," invited talk at The Ohio State University Department of Electrical and Computer Engineering, March 12, 2009.
43. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," invited talk at Notre Dame, Electrical Engineering, March 16, 2009.
44. C. A. Bouman, "A Sparses Transform Theory for Time Varying Nonstationary Signals and Systems," invited talk at Princeton University, Electrical Engineering, April 2, 2009.
45. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," invited talk at University of Maryland College Park, Booz-Allen-Hamilton Colloquium in Electrical and Computer Engineering, April 3, 2009.
46. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," invited seminar at Los Alamos National Laboratory, June 1, 2009.

47. C. A. Bouman, "Model Based Algorithms for Rendering, Enhancing, Reconstructing, and Analyzing Images," invited seminar at Xerox Webster Research Center, September 10, 2009.
48. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," IEEE Signal Processing Society Distinguished Lecture for the Rochester NY Chapter Chapter, September 10, 2009.
49. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," IEEE Signal Processing Society Distinguished Lecture for the Dallas Texas Chapter/University of Texas at Dallas Chapter, September 10, 2009.
50. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," IEEE Signal Processing Society Distinguished Lecture for the Boston Chapter/Boston University Chapter, September 16, 2009.
51. C. A. Bouman, "Grand Challenge Problems in Digital Imaging," Keynote talk for the International Conference on Information, Communications, & Signal Processing, December 8, 2009.
52. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," IUPUI ECE Departmental Seminar, February 11, 2010.
53. C. A. Bouman, "Grand Challenge Problems in Digital Imaging," IEEE Signal Processing Society Distinguished Lecture for the Raleigh NC Chapter/North Carolina State University Chapter, March 5, 2010.
54. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," IEEE Signal Processing Society Distinguished Lecture for the Phoenix AZ Chapter/Arizona State University, April 2, 2010.
55. C. A. Bouman, "Model-Based Reconstruction for Multislice Helical Scan CT," IPRPI Workshop and Tutorial on Microlocal Analysis in Imaging, for RPI Inverse Problems Center, August 3, 2010.
56. C. A. Bouman, "Model-Based Reconstruction for Multislice Helical Scan CT," Opening presentation at ALERT ADSA4 Workshop, Department of Homeland Security (DHS) Center for Awareness and Localization of Explosives-Related Threats (ALERT), Northeastern University, Boston MA, October 5, 2010.
57. C. A. Bouman, "Model-Based Reconstruction for Multislice Helical Scan CT," IEEE Signal Processing Society Distinguished Lecture for the Rochester MN/Mayo Clinic Chapter, October 11, 2010.
58. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," IEEE Signal Processing Society Distinguished Lecture for the Ames IA/Iowa State Chapter, October 13, 2010.
59. C. A. Bouman, "Model-Based Reconstruction in Scanned Baggage Security Applications," DHS Center for Awareness and Localization of Explosives-Related Threats (ALERT), Northeastern University, May 5, 2011
60. C. A. Bouman, "Emerging Methods in Model-Based Reconstruction for Security Screening," Research to Reality, Northeastern University, October 13, 2011.
61. C. A. Bouman, "Beyond Bizarrely Simplistic Prior Models for Threat Detection," Detecting Illicit Substances: Explosives & Drugs, Gordon Research Conference, Lucca (Barga), Italy, June 28, 2011.
62. C. A. Bouman, "Future Directions in Model-Based Methods," GE Healthcare, October 26, 2011.
63. C. A. Bouman, "Inverse Problems in Tomographic Imaging," Institute for Mathematics and its Applications (IMA), University of Minnesota, November 16, 2011
64. C. A. Bouman, "Model Based Imaging," Duke University, April 4, 2012.
65. C. A. Bouman, "Model Based Imaging," University of Illinois at Urbana Champaign, October 25, 2012.

66. C. A. Bouman, "Inverse Methods: Fusion of Data with Physical Models," Air Force Research Laboratory Workshop on *Data Fusion: For the Detection of Rare and Anomalous Events*, December 19, 2012.
67. C. A. Bouman, "Model-Based Imaging," Information Science and Technology Center seminar, Los Alamos National Laboratory, March 6, 2013.
68. C. A. Bouman, "Sparse Transformations for Image Analysis," *Workshop on Statistical Image Analysis*, Los Alamos National Laboratory, March 8, 2013.
69. C. A. Bouman, "Model-Based Imaging," Keynote Speaker at *Signal and Image Sciences Workshop*, Lawrence Livermore National Laboratory, May 22, 2013.
70. C. A. Bouman, "Model-Based Imaging," Invited Trend/Overview Talk, IEEE Signal Processing Society, *ChinaSIP Conference*, July 8, 2013.
71. C. A. Bouman, "Model-Based Imaging," "University of Illinois at Urbana Champaign, October 25, 2012.
72. C. A. Bouman, "Inverse Methods: Fusion of Data with Physical Models," Air Force Research Laboratory Workshop on *Data Fusion: For the Detection of Rare and Anomalous Events*, December 19, 2012.
73. C. A. Bouman, "Model-Based Imaging," Information Science and Technology Center seminar, Los Alamos National Laboratory, March 6, 2013.
74. C. A. Bouman, "Sparse Transformations for Image Analysis," *Workshop on Statistical Image Analysis*, Los Alamos National Laboratory, March 8, 2013.
75. C. A. Bouman, "Model-Based Imaging," Keynote Speaker at *Signal and Image Sciences Workshop*, Lawrence Livermore National Laboratory, May 22, 2013.
76. C. A. Bouman, "Model-Based Imaging," Invited Trend/Overview Talk, IEEE Signal Processing Society, *ChinaSIP Conference*, July 8, 2013.
77. C. A. Bouman, "Model-Based Imaging," "Sparse Transformations for Image Analysis," and "Emerging Methods in Dynamic Acquisition and Image Modeling," Invited Lecture Series at Tsinghua University, Department of Engineering Physics, July 8, 10, and 11, 2013.
78. C. A. Bouman, "Iterative Image Reconstruction for Helical X-ray CT Baggage Scans," Invited Lecture Series at DHS Industry Day, Washington D.C., August 15, 2013.
79. C. A. Bouman, "Model-Based Reconstruction for the Imaging of Materials," Invited Lecture Series at Lawrence Berkeley National Laboratory Berkeley, CA, October 8, 2013.
80. C. A. Bouman, "Model-Based Imaging," Invited lecture at University of Southern California Viterbi School of Engineering, Los Angeles, CA, October 29, 2013.
81. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Distinguished Lecture at Northwestern University Department of Electrical and Computer Engineering, Evanston IL, January 29, 2014.
82. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Plenary Lecture at the 2014 Electronic Imaging Symposium, San Francisco CA, February 5, 2014.
83. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Seminar at Ohio State University Material Science Department, Columbus OH, March 7, 2014.

84. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Keynote Talk, CVPR Workshop on Computational Cameras and Displays (CCD) Columbus OH, June 28, 2014.
85. C. A. Bouman, "Integrated System Design and Optimal Dynamic Sampling," Invited Talk, Air Force Research Laboratory Workshop on Autonomous Research Systems for Materials Development, TecEdge Innovation Center, Dayton Ohio, 12-13 August 2014.
86. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," *First Imaging Initiative Workshop: Tomography and Ptychography, part of the Integrated Imaging Initiative (III)*, at Argonne National Laboratory Advanced Photon Source (APS), September 29-30 2014.
87. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Rochester Institute of Technology Center for Imaging Science, Rochester NY, 14 October 2014.
88. C. A. Bouman, "Model-Based Imaging and Reconstruction," *Full Field Imaging and Complementary Techniques with the APS Upgrade Workshop*, at Argonne National Laboratory Advanced Photon Source (APS), January 20-21, 2015.
89. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Lawrence Berkeley National Laboratory, Berkeley CA, 12 February 2015.
90. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Physics Colloquium, Purdue University Department of Physics and Astronomy, West Lafayette IN, 26 February 2015.
91. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Oak Ridge National Laboratory, Oak Ridge TN, 25 March 2015.
92. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Keynote Address for the 2015 Spring Symposium, of the Center for Advanced Computational Imaging, University of Wisconsin Milwaukee.
93. C. A. Bouman, "Imaging After Compressed Sensing," Tutorial for NSF Workshop on Systems, Information, Learning, and Optimization (SILO), University of California Berkeley Simons Institute, May 27-29, 2015.
94. C. A. Bouman, "High-Performance Iterative CT Reconstruction using Super-Voxel Technology," *Advanced Development for Security Applications 13 (ADSA)* at Northeastern University, October 28, 2015.
95. C. A. Bouman, "Model-Based Imaging and Reconstruction," *LANSE User Group Meeting*, at Los Alamos Laboratory, November 2, 2015.
96. C. A. Bouman, "Model-Based Imaging and Reconstruction," *Quantitative 3D X-Ray Imaging: From Tomographic Images to Metrics*, Lorentz Center: International Center for Workshops in the Sciences, at Leiden University, January 11, 2016.
97. C. A. Bouman, "Super-Voxel ICD: Mapping Model-Based Reconstruction to High Performance Computers," Lawrence Berkeley Laboratory, Berkeley CA, February 18, 2016.
98. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Department of Electrical and Computer Engineering Colloquium, University of Minnesota, March 10, 2016.
99. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," keynote speaker for *Multimodal Data Analysis Hackathon* and the Argonne National Laboratory, April 5, 2016.

100. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," The Ohio State University, April 25, 2016.
101. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Columbia University, May 5, 2016.
102. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," New York University, May 6, 2016.
103. C. A. Bouman, "Achieving Real-Time 3D Dynamic Imaging of Materials," Air Force Research Laboratory, June 23, 2016.
104. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Pennsylvania State University, School of Electrical and Engineering and Computer Science, September 9, 2016.
105. C. A. Bouman, "Integrated Imaging at Purdue," AFRL, Starfire Optical Range, Kirtland Air Force Base, January 13, 2017.
106. C. A. Bouman, "Statistical Approaches to High-Quality 3-D Tomographic Reconstruction from Sparse Views," Argonne National Laboratory, Advanced Photon Source Workshop, May 9, 2017.
107. C. A. Bouman, "Integrating Physical and Learned Models in Imaging Science," Argonne National Laboratory, Center for Nanoscale Materials, May 9, 2017.

Special Projects, Short Courses, and Workshops:

1. R. Balasubramanian, C. A. Bouman, and J. P. Allebach, "New Results in Color Image Quantization," (Best student poster award), PEEII poster presentation, April 6, 1992.
2. C. A. Bouman and J. P. Allebach, "Introduction to Digital Halftoning," Short Course presented for *The Society for Imaging Science and Technology* at *IS&T's 46th Annual Conference*, May 9, 1993.
3. J. P. Allebach and C. A. Bouman, "Seminar on Advanced Concepts in Digital Halftoning," presented for *The Society for Imaging Science and Technology* at *IS&T's 46th Annual Conference*, May 14, 1993.
4. C. A. Bouman and J. P. Allebach, "Introduction to Digital Halftoning," Short Course presented for *The Society for Imaging Science and Technology* (IS&T) and *Society of Photo-Optical Instrumentation Engineers* (SPIE) at *Electronic Imaging 1994*, February 7, 1994.
5. C. A. Bouman and J. P. Allebach, "Introduction to Digital Halftones," Short Course presented for *The Society for Imaging Science and Technology* at *IS&T's 47th Annual Conference*, May 15, 1994.
6. J. P. Allebach and C. A. Bouman, "Current Trends in Digital Halftoning," State of the Art Seminar presented for *The Society for Imaging Science and Technology* at *IS&T's 47th Annual Conference*, May 20, 1994.
7. C. A. Bouman, "Markov Random Fields and Stochastic Image Models," invited tutorial taught at the *IEEE International Conference on Image Processing*, October 26, 1995.
8. C. A. Bouman, "Biomedical Optical Imaging," invited tutorial taught at the *IEEE International Symposium on Biomedical Imaging (ISBI)*, April 15-18, 2004.
9. C. A. Bouman, "Biomedical Optical Imaging," invited tutorial taught at the *IEEE International Symposium on Biomedical Imaging (ISBI)*, April 12-15, 2007.
10. Umesh Adiga, UES, Inc; Charles A. Bouman, Purdue University; Al Hero, University of Michigan; and Marc De Graef, Carnegie Mellon University; "Data Fusion: For the Detection of Rare and Anomalous Events," *UES Conferences in collaboration with the Air Force Research Laboratory*, December 17-19, 2012.