VITA

May 20, 2026

Name: Charles Addison Bouman

Education:

Degree	*Date*	*School*
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.
25. 2018 IEEE Signal Processing Society Young Author Best Paper Award to Suhas Sreehari.
26. 2020 SIAM Imaging Science Best Paper Prize for "Plug-and-Play Priors for Bright Field Electron Tomography and Sparse Interpolation," *IEEE Transactions on Computational Imaging*, Dec. 2016. Awarded every two years to the author or authors of the most outstanding paper on mathematical and computational aspects of imaging.
27. ICIP 2021, "Best Student Paper Award" awarded to Thilo Balke for "Hyperspectral Neutron CT with Material Decomposition".
28. 2021, IEEE Signal Processing Society, Claude Shannon-Harry Nyquist Technical Achievement Award for "for fundamental contributions to X-ray computed tomography and computational imaging".
29. 2022, Society for Imaging Science & Technology, Honorary Member, "for Pioneering efforts in the field of Computational Imaging".
30. 2022, First Place, AAPM TrueCT Grand Challenge; joint entry by ORNL and Purdue, ORNL Lead Dr. Xiao Wang, Purdue Greg Buzzard and Charles Bouman.
31. 2023, Society for Imaging Science & Technology, Service Award
32. ICIP 2023, "Best Student Paper Award" awarded to Mohammad Samin Nur Chowdhury and Diyu Yang for "Autonomous Polycrystalline Material Decomposition for Hyperspectral Neutron Tomography".

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
February 2024 - Present	Professor by Courtesy Department of Mathematics, 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, "Polariod 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, $3,5000,000.

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," Oak Ridge National Laboratory 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," Oak Ridge National Laboratory 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. 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.

162. 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.

163. 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.

164. 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.

165. 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.

166. 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.

167. 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.

168. C. A. Bouman, Principal Investigator, "Ultrasonic Phased Arrays and Interactive Reflectivity Tomography for Nondestructive Inspection of Injection and Production Wells in Geothermal Energy Systems - Phase IV," Oak Ridge National Laboratory via UT-BATTELLE LLC, 2/01/2017 to 09/30/2018, $60,000

169. C. A. Bouman, Principal Investigator, "Attention Tracking and Anticipation," Lockheed Martin, 02/27/2017 to 11/26/2017, $80,000.

170. C. A. Bouman, Principal Investigator, "CT Image Reconstruction and Processing for Air Transportation Security," subcontract through Northeastern University ALERT Department of Homeland Security Center, 07/01/2017 to 6/30/2018, $75,000.

171. 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.

172. 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.

173. M. Sangid, Principal Investigator, Co-Principal Investigator: C. A. Bouman, "MRI Consortium: Development of a High-Throughput High Energy X-ray Diffraction Microscope," National Science Foundation, 9/01/2017 to 8/31/2019, $187,454.

174. C. A. Bouman, Principal Investigator, "Transitioning Advanced Imaging Technology to the Revolution System," General Electric Company, 9/01/2017 to 8/31/2018, $125,499.

175. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery T Buzzard, Stanley Chan, and Garth Simpson, "CIF: Medium: Multi-Agent Consensus Equilibrium: Modular Methods for Integrating Disparate Sources of Expertise," National Science Foundation, 5/01/2018-4/30/2022, total award $1,264,000.

176. C. A. Bouman, Principal Investigator, "CT Image Reconstruction and Processing for Air Transportation Security," subcontract through Northeastern University ALERT Department of Homeland Security Center, 07/01/2018 to 6/30/2019, $75,000.

177. C. A. Bouman, Principal Investigator, "Development of Software Tool Exploiting Novel Algorithms for Reconstructing High Quality Time Varying 3D Images from Limited X-ray CT Data," Eli Lilly and Company, 07/01/2018 to 06/30/2019, $90,000.

178. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Algorithms for Multi-modal and Multi-resolution Data Fusion," UES Inc., (Air Force Research Labs), prime contract FA8650-15-D-5405, order FA8650-18-F-5400, 07/16/2018-07/15/2021, $225,000.

179. C. A. Bouman, Principal Investigator, of Phase I STTR awarded to High Performance Imaging (HPI), "High Performance Computing for DEAP Imaging through Atmospheric Turbulence" Contract number: FA9451-18-P-0250, 7/20/2018 - 4/22/2019, $149,998.

180. C. A. Bouman, Principal Investigator, Co-Principal Investigators: S. P. Midkiff and A. Raganathan, "High Performance Computing for DEAP Imaging through Atmospheric Turbulence: Phase I", High Performance Imaging, LLC, (STTR Phase I subcontract), Agreement number: 18101381, 07/20/2018 to 04/19/2019, $74,463.00.

181. C. A. Bouman, Principal Investigator, "Deep Learning for MBIR in the Revolution System," General Electric Company, 9/01/2018 to 8/31/2019, $128,644.

182. C. A. Bouman, Principal Investigator, "Ultrasonic Imaging for NDE Applications," Oak Ridge National Laboratory via UT-Battelle LLC, 3/12/2019 to 1/31/2020, $100,000

183. C. A. Bouman, Principal Investigator, "Development of Software Tool Exploiting Novel Algorithms for Reconstructing High Quality Time Varying 3D Images from Limited X-ray CT Data," Eli Lilly and Company, 07/01/2019 to 06/30/2020, $89,996.

184. C. A. Bouman, Principal Investigator, "Deep Learning for High-Speed MBIR in X-Ray CT," General Electric Company, 9/01/2019 to 8/31/2020, $133,881.

185. C. A. Bouman, Principal Investigator, "Toward Advanced Baggage Screening: Reconstruction & Automatic Target Recognition (ATR)," subcontract through Northeastern University ALERT Department of Homeland Security Center, 07/01/2019 to 9/30/2021, $75,000.

186. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Model Based 3D Surface Reconstructions", Air Force Research Laboratory (AFRL) subcontracted through Defense Engineering Corporation (DEC), 4/1/2020 - 3/31/2021, $85,574.

187. C. A. Bouman, Principal Investigator, "Development of Software Tool Exploiting Novel Algorithms for Reconstructing High Quality Time Varying 3D Images from Limited X-ray CT Data," Eli Lilly and Company, 07/01/2020 to 08/01/2021, $89,999.90.

188. C. A. Bouman, Principal Investigator, "Advanced Reconstruction Methods for Ptychographic Imaging and Physics-Informed Priors for Dynamic Imaging," Los Alamos National Laboratory, 08/05/2020 to 06/01/2021, $145,000.

189. C. A. Bouman, Principal Investigator, "Integrating AI and Advance Algorithmic Methods to Achieve Real-Time Coherent Optical Wavefront Sensing," Air Force Research Laboratory (AFRL), 09/24/2020 to 09/23/2023, $270,000.

190. C. A. Bouman, Principal Investigator, "Deep Learning for Improved Noise and Artifact Removal in X-Ray CT," General Electric Company, 9/01/2020 to 8/31/2021, $137,347.

191. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Intelligent Acquisition and Reconstruction for Hyperspectral Tomography", DoE Office of Science, subcontracted through Oak Ridge National Laboratory, 2/1/2021 - 8/31/2023, $293,286.

192. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Deep Learning and Advanced Statistical Methods in X-Ray CT," General Electric Company, 9/01/2021 to 8/31/2022, $242,534.

193. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Advanced Reconstruction Methods for Ptychographic Imaging and Physics-Informed Priors for Dynamic Imaging: Phase II," Los Alamos National Laboratory, 09/29/2021 to 09/30/2023, $380,000.

194. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Development of Software Tool Exploiting Novel Algorithms for Reconstructing High Quality Time Varying 3D Images from Limited Xray CT Data and Synchrotron Data," Eli Lilly and Company, 10/01/2021 to 09/30/2022, $92,000.

195. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Model Based 3D Surface Reconstructions", Air Force Research Laboratory (AFRL) subcontracted through Defense Engineering Corporation (DEC), 10/1/2021 - 9/30/2022, $160,000.00.

196. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Image Enhancement," Oak Ridge National Laboratory, 06/23/2022 to 06/22/2023, $101,834.00

197. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Development of Software Tool Exploiting Novel Algorithms for Reconstructing High Quality Metal Artifact Free 3D and 4D Images from Limited Xray CT Data", Eli Lilly and Company, 10/01/2022 to 09/30/2023, $95,000.

198. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Deep Learning and Advanced Statistical Methods in X-Ray CT," General Electric Company, 10/01/2022 to 9/30/2023, $205,637.

199. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Spectrum Calibration" Lawrence Livermore National Laboratory 12/07/2022 to 09/30/2024, $165,000.

200. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Photon Counting Limited 3D Reconstructions from Diverse LIDAR Measurements", Air Force Research Laboratory (AFRL) subcontracted through Defense Engineering Corporation (DEC), 10/01/2022 - 09/30/2024, $160,000.00.

201. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Developing an AI-Based Adaptive Scan Strategy for Cone-Beam X-Ray CT of Additively Manufactured Components", Oak Ridge National Laboratory, 06/01/2023 - 09/30/2025 $277,140.00

202. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Integrating AI and Advance Algorithmic Methods to Achieve Real-Time Coherent Optical Wavefront Sensing through Atmospheric Turbulence," Air Force Research Laboratory (AFRL), 10/01/2023 to 06/30/2026, $600,000.

203. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Intelligent Acquisition and Reconstruction for Hyperspectral Tomography Systems: Solving Tensor Tomography," Oak Ridge National Laboratory, 10/01/2023 to 09/30/2026, $336,388.27

204. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Development of Software Tool Exploiting Novel Algorithms for Reconstructing High Quality Metal Artifact Free 3D and 4D Images from Limited Xray CT Data", Eli Lilly and Company, 10/01/2023 to 09/30/2024, $111,475.

205. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "High Frame-Rate Video Super Resolution via Spatio-Temporal Regularization", Sandia National Laboratories 10/01/2023 to 09/30/2024, $104,838.

206. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Advanced Statistical Methods in Photon Counting X-Ray CT", General Electric Company, 10/15/2023 to 10/14/2024, $205,637.

207. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Development of Software Tool Exploiting Novel Algorithms for Reconstructing High Quality Metal Artifact Free 3D and 4D Images from Limited Xray CT Data", Eli Lilly and Company, 10/01/2024 to 09/30/2025, $111,475.

208. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Advanced Statistical Methods in Photon Counting X-Ray CT 2025", General Electric Company, 11/11/2024 to 11/10/2025, $199,999.

209. N. Chawla, Principal Investigator, Co-Principal Investigators: C. A. Bouman, H. S Abdel-Khalik, E. Madenci, G. Buzzard, "FuSe2 Topic 2: High Resolution Imaging of Defects in Semiconductors: Detection, Reliability, and Mitigation", National Science Foundation, 09/15/2024 - 08/31/2027, $1,600,000.

210. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Compressed Latent Space Design", Samsung Research America, Inc., 12/15/2024 to 12/14/2025, $150,000.

211. Gregery Buzzard, Principal Investigator, Co-Principal Investigators: C. A. Bouman, "Improving Object Classification using Super-Resolution," Oak Ridge National Laboratory, 03/04/2025 to 09/30/2025, $45,000.00

212. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Software and Algorithms for Large High-Quality Artifact-Free 4D CT Reconstructions", Eli Lilly and Company, 10/01/2025 to 09/30/2026, $115,000.

213. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Advanced Statistical Methods in Photon Counting X-Ray CT 2026", General Electric Company, 11/24/2025 to 11/23/2026, $199,999.

214. C. A. Bouman, Principal Investigator, Co-Principal Investigators: Gregery Buzzard, "Intelligent Acquisition and Reconstruction for Hyperspectral Tomography Systems: Solving Tensor Tomography," Oak Ridge National Laboratory, 10/01/2025 to 09/30/2026, $116,000.00

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-Infared 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 Removel 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)

37. G. M. Dilshan P. Godaliyadda - 12/2017 - "A Supervised Learning Approach to Dynamic Sampling (SLADS)" (Co-advised with Prof. Gregery Buzzard)

38. Haitao Xue - 12/2017 - "Clustering and Segmentation with Application in Document Image Processing" (Co-advised with Prof. Jan Allebach)

39. Zeeshan Nadir - 05/2018
- "A Model Based Iterative Reconstruction Approach to Tunable Diode Laser Absorption Tomography"

40. Hani A. Almansouri - 12/2018 - "Model-Based Iterative Reconstruction and Direct Deep Learning for One-Sided Ultrasound Non-Destructive Evaluation"

41. Jing Li - 5/2019 - "Fast and Robust UAV to UAV Detection and Tracking Algorithm"

42. Venkatesh Sridhar - 3/2020 - "Parallel Computational Methods for Model-Based Tomographic Reconstruction and Coherent Imaging" (Co-advised with Prof. Gregery Buzzard)

43. Soumendu Majee - 8/2021 - "High Speed Imaging via Advanced Modeling" (Co-advised with Prof. Gregery Buzzard)

44. Emma Reid - 8/2021 - "Multi-Resolution Data Fusion for Super Resolution of Microscopy Images" (Co-advised with Prof. Gregery Buzzard)

45. Abdulrahman Alanazi - 04/2023 - "Methods for Ultrasound Imaging of Multi-Layered Objects Based on Collimated Beam Systems" (Co-advised with Prof. Gregery Buzzard)

46. Thilo Balke - 04/2023 - "Time-of-Flight Neutron CT for Isotope Density Reconstruction and Cone-Beam CT Separable Models"

47. Maliha Hossain - 09/2023 - "Advanced Prior Models for Ultra Sparse View Tomography"

48. Madhuri Mahendra Nagare - 05/2024 - "Advanced Algorithms for X-ray CT Image Reconstruction and Processing"

49. Tony Allen - 05/2024 - "Majorized Multi-Agent Consensus Equilibrium for 3D Coherent LIDAR Imaging" (Co-advised with Prof. Gregery Buzzard)

50. Natalie Jadue - 07/2024 - "MACE CT Reconstruction for Modular Material Decomposition from Photon-Counting CT Data" (Co-advised with Prof. Gregery Buzzard)

51. Diyu Yang - 08/2024 - "Multi-Pose Fusion and Adaptive Orientation Selection for X-ray and Neutron Computed Tomography," (Co-advised with Prof. Gregery Buzzard)

52. Qiuchen Zhai - 12/2024 - "Projected Multi-Agent Consensus Equilibrium (PMACE) for Distributed Reconstruction with Application to Ptychography," (Co-advised with Prof. Gregery Buzzard)

53. Wenrui Li - 03/2025 - "Model-Based Approaches to Ill-Conditioned Inverse Problems in X-ray Imaging," (Co-advised with Prof. Gregery Buzzard)

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"

3. Trevor D. Moore - 12/2018 Reconstruction of High-Speed, Event-Based Video using Plug and Play ADMM

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

Mohammad Samin Nur Chowdhury	Ph.D.
Haley Elise Duba (Math)	Ph.D.
Jingsong Lin	Ph.D.
Sowmya Seeram	Ph.D.
Jeffrey William Utley (Math)	Ph.D.
Karl Joseph Weisenburger (Math)	Ph.D.
Ziyun Li	Ph.D.
Mingqi Yang	Ph.D.
August Bibler	Ph.D.
Harel Dor	Ph.D.
Dominic Flowers	M.S.
Caden Cardell	M.S.

Courses Developed:

BME 64600/ECE 60146	Deep Learning
ECE 637	Digital Image Processing I
ECE 641	Model Based Image and Signal Processing
ECE 438L	Digital Signal Processing with Applications Laboratory

Courses "In Charge of":

BME 64600/ECE 60146	Deep Learning
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. J. P. Simmons, L. F. Drummy, C. A. Bouman, and M. De Graef, "Statistical Methods for Materials Science: The Data Science of Microstructure Characterization," *CRC Press, Taylor & Francis Group,* 2019.

5. Charles A. Bouman, "Foundations of Computational Imaging: A Model-Based Approach," *Society for Industrial and Applied Mathematics*, Philadelphia, 2022.

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 (JOSA-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 (JOSA-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 (JOSA-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 (JOSA-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 (JOSA-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 Hierarchal 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 Gaind, 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 Gaind, 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 (JOSA-A)*, 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.

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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.

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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)

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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)

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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)

53. Garth Simpson, Charles Bouman, Rya Muir, Shane Sullivan, Justin Newman, Mark Carlsen, and Suhas Sreehari, "High Frame-Rate Multichannel Beam-Scanning Microscopy," United States Patent 9,784,960. October 10, 2017.

54. Junshi Liu, Swagath Venkataramani, Singanallur V. Venkatakrishnan, Charles A. Bouman, and Anand Raghunathan, "Tomographic Reconstruction System," United States Patent 10,163,232. December 25, 2018.

55. Peter Bauer, Yandong Guo, Jan Allebach, and Charles Bouman, "Tex line detection," United States Patent 10,185,885. January 22, 2019.

56. Dejan Depalov, Peter Bauer, Yandong Guo, Jay Allebach, and Charles A. Bouman, "Creation of Hierarchical Dictionary," United States Patent 10,248,666. April 2, 2019.

57. Garth Jason Simpson, Charles Addison Bouman, Ryan Douglas Muir, Shane Sullivan, Justin Allen Newman, Mark Carlsen, and Suhas Sreehari, "High Frame-Rate Multichannel Beam-Scanning Microscopy," United States Patent 10,409,047 B2. September 10, 2019.

58. Casey J. Pellizzari, Mark F. Spencer, and Charles A. Bouman, Jr., "Single Shot Imaging using Digital Holography Receiver," United States Patent 10,416,609. December 17, 2019.

59. Casey J. Pellizzari, Mark F. Spencer, and Charles A. Bouman, Jr., "Method of single shot imaging for correcting phase errors," United States Patent 10,591,871. March 17, 2020.

60. Jean-Baptiste Thibault, Somesh Srivastava, Jiang Hsieh, Charles A. Bouman, Jr., Dong Ye, and Ken Sauer. "Image generation using machine learning," United States Patent 11,126,914. September 21, 2021.

61. Charles Addison Bouman and Sherman Jordan Kisner . "System and method for latency reduction in an optical imaging system," United States Patent 11,423,309 B2, August 23, 2022.

62. Roman Melnyk, Madhuri Mahendra Nagare, Jie Tang, Obaidullah Rahman, Brian E Nett, Ken Sauer, Charles Addison Bouman, Jr. "Noise preserving models and methods for resolution recovery of x-ray computed tomography images," United States Patent US-12299849-B2, May 13, 2025.

Patents Applications:

1. Madhuri Mahendra Nagare, Roman Melnyk, Obaidullah Rahman, Ken Sauer, and Charles Bouman. "System and Method for Computed Tomography Image Denoising with a Bias-Reducing Loss Function," United States Patent Application Publication US 2023/0375038 A1, November 24, 2022.

2. Obaidullah Rahman, Madhuri Mahendra Nagare, Roman Melnyk, Jie Tang, Brian E. Nett, Charles Addison Bouman, and Ken Sauer, "Generating Neural Networks Tailored to Optimize Specific Medical Image Properties Using Novel Loss Functions," United States Patent Application Publication US 2023/0385643 A1, November 30, 2023.

3. Madhuri Mahendra Nagare, Roman Melnyk, Brian Nett, Ken D. Sauer, Gregery T. Buzzard, and Charles A. Bouman Jr., "Image Enhancement using Texture Matching Generative Adversarial Networks", United States Patent Application Publication US-20240119567-A1, April 11, 2024.

4. Jonathon S. Maltz, Charles A. Bouman, Jr., Natalie Jadue, Madhuri Mahendra Nagare, and Gregery T. Buzzard, "Modular Material Decomposition from Energy Resolving Photon Counting Data," United States Patent Application Publication US-20250265742-A1, August 21, 2025

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: IEEE
Activity: Guest Editor of *Signal Processing Magazine*
Special Issue on "Signal Processing for Advanced Materials"
2021

Organization: SIAM
Journal on Imaging Sciences
Activity: Associate Editor
2017 - 2022

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 Nineth 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
1/2014-2019

Organization: IEEE
Signal Processing Society
Activity: Member of Awards Board
1/2023-12/2024

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 '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: SPIE/IS&T
Electronic Imaging Symposium '03
Activity: Founder and Chair of Conference on
"Computational Imaging"
2003 through 2026

Organization: IS&T
Electronic Imaging Symposium 2021-2022
Activity: General Co-Chair of Symposium
2020 and 2022

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

Organization: IS&T (Imaging Science and Technology)
Board of Directors
Activity: Vice President at Large
2025 to 2027

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

Committee: Computer Systems Engineering (CSE)
Faculty Search Committee, ECE, Purdue
Activity: Member
2018 to 2019

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
2016-2017

Engineering-Wide Committee Activities:

Committee: Academic Personnel Grievance Committee, Purdue University
Activity: Member
1992 to 1994

Committee: Ad-Hoc Committee on Tenure Promotion Proceedures and Processes, Engineering, Purdue University
Activity: Member

2003 to 2004

Committee: Ad-Hoc Committee on Data Science, Engineering, Purdue University
Activity: Member
2017 - 2018

Committee: Faculty Search Committee on Data Science for Healthcare, Engineering, Purdue University
Activity: Member
2018 - 2020

Committee: Initiative for Data Science and Engineering Applications (IDEA), Engineering, Purdue University
Activity: Member
2019 - 2020

Committee: Engineering Named Professor Committee (ENPC), Purdue University
Activity: Member
2023 - present

Department of Mathematics Committee Activities:

Committee: Center for Computational and Applied Mathematics, Purdue University
Activity: Member
2024 - present

University-Wide Committee Activities:

Committee: Integrated Imaging Cluster Search Committee
Activity: Chair
2012 to 2016

Committee: University Senate
Activity: Member
2005 to 2008

Committee: Working Group on Data Science, Purdue University
Activity: Member
2017 - 2018

Committee: Data Science Infrastructure Budget Committee
Activity: Chair
2018

Committee: University Senate
Activity: Faculty Affairs Committee
2020-2022

Committee: University Senate
Activity: Member
2022-2023

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, Feburary 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, Niksayuna NY, December 13, 2006.

32. C. A. Bouman, "Iterative Image Reconstruction Without the Iterations," University if 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," in vited 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," in vited 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," in vited talk at Notre Dame, Electrical Engineering, March 16, 2009.

44. C. A. Bouman, "A Sparses Transform Theory for Time Varying Nonstationary Signals and Systems," in vited talk at Princeton University, Electrical Engineering, April 2, 2009.

45. C. A. Bouman, "Model Based Imaging: In Search of the Free Lunch," in vited 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 Pheonix 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," "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.

72. 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.

73. C. A. Bouman, "Model-Based Reconstruction for the Imaging of Materials," Invited Lecture Series at Lawrence Berkeley National Laboratory Berkeley, CA, October 8, 2013.

74. C. A. Bouman, "Model-Based Imaging," Invited lecture at University of Southern California Viterbi School of Engineering, Los Angeles, CA, October 29, 2013.

75. 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.

76. 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.

77. 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.

78. 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.

79. 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.

80. 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.

81. 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.

82. 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.

83. 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.

84. 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.

85. 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.

86. 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.

87. 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.

88. 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.

89. C. A. Bouman, "Model-Based Imaging and Reconstruction," *LANSE User Group Meeting,* at Los Alamos Laboratory, November 2, 2015.

90. 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.

91. C. A. Bouman, "Super-Voxel ICD: Mapping Model-Based Reconstruction to High Performance Computers," Lawrence Berkeley Laboratory, Berkeley CA, February 18, 2016.

92. 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.

93. 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.

94. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," The Ohio State University, April 25, 2016.

95. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," Columbia University, May 5, 2016.

96. C. A. Bouman, "Integrated Imaging: Creating Images from the Tight Integration of Algorithms, Computation, and Sensors," New York University, May 6, 2016.

97. C. A. Bouman, "Achieving Real-Time 3D Dynamic Imaging of Materials," Air Force Research Laboratory, June 23, 2016.

98. 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.

99. C. A. Bouman, "Integrated Imaging at Purdue," AFRL, Starfire Optical Range, Kirtland Air Force Base, January 13, 2017.

100. 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.

101. C. A. Bouman, "Integrating Physical and Learned Models in Imaging Science," Argonne National Laboratory, Center for Nanoscale Materials, May 9, 2017.

102. C. A. Bouman, "Integrated Imaging at Purdue," Wright-Patterson AFB, May 25, 2017.

103. C. A. Bouman, "Consensus Equilibrium: Regularized Inversion without Optimization," The Ohio State University, IMaCCS Workshop, June 1 2017.

104. C. A. Bouman, "Super-Resolution Electron Microscopy using Multi-Resolution Data Fusion (MDF)," M&M conference 2018, Compressive Sensing, Machine Learning, and Advanced Computation in Microscopy, Baltimore, MD, August 5-9, 2017.

105. C. A. Bouman, "Integrated Imaging: Combining Physical, Data, and Computational Science to Create the Next Generation of Sensors," University of Illinois Urbana Champaign (UIUC), October 25, 2017.

106. C. A. Bouman, "SLADS: Fast Dynamic Sampling using Machine Learning," SIAM Conference on Imaging Science, Bologna, Italy, October 3, 2018.

107. C. A. Bouman, "Deep Learning and Plug-&-Play," SIAM Conference on Imaging Science, Bologna, Italy, October 6, 2018.

108. C. A. Bouman, "Consensus Equilibrium: A Framework for Model Integration," Allerton Conference on Communication, Control, and Computing, University of Illinois at Urbana Champaign, October 3, 2018.

109. C. A. Bouman, "A Bayesian Framework for Coherent Imaging through Atmospheric Turbulence," OSA Imaging and Applied Optics Congress, June 25, 2018.

110. C. A. Bouman, "Consensus Equilibrium: A Framework for Model Integration," OSA Imaging and Applied Optics Congress, June 27, 2018.

111. C. A. Bouman, "Machine Learning in Imaging and Inverse Problems: Where is it Going?," Institute for Mathematics and its Applications (IMA), University of Minnesota, October 23, 2018.

112. C. A. Bouman, "Machine Learning in Imaging and Inverse Problems: Where is it Going?," OSU Materials Week, The Ohio State University, May 8, 2019.

113. C. A. Bouman, "Machine Learning in Imaging and Inverse Problems: Where is it Going?," Los Alamos National Laboratory, July 16, 2019.

114. C. A. Bouman, "Machine Learning in Imaging and Inverse Problems: Where is it Going?," plenary talk at *Conference on Modern Challenges in Imaging: In the Footsteps of Allan MacLeod Cormack on the Fortieth Anniversary of his Nobel Prize,* Tufts University, Medford MA August 8, 2019.

115. C. A. Bouman, "Dynamic 4D Reconstruction," *LANL Dynamic 3D Imaging Workshop,* Los Alamos National Laboratory, July 28, 2019.

116. C. A. Bouman, "The Magic of Intelligent Coherent Optical Processing," *Advances in Computational and Quantum Imaging Workshop,* Purdue University, September 11, 2019

117. C. A. Bouman, "Dynamic Imaging," Eli Lilly and Company, Indianapolis IN, September 24, 2019

118. C. A. Bouman, "Coherent Optical Processing with Machine Learning," *Institute for Mathematics and its Applications, Workshop on Computational Imaging,* October 16, 2019.

119. C. A. Bouman, "Machine Learning in Imaging and Inverse Problems: Where is it going?," *Korean Advanced Institute of Science and Technology (KAIST),* Daejeon, South Korea, November 1, 2019.

120. C. A. Bouman, "Direct Reconstruction from Sinogram Data using Stacked Back Projection," *International Conference on Computer Vision (ICCV), Workshop on Learning for Computational Imaging: Sensing, Reconstruction, and Analysis,* Seoul South Korea, November 2, 2019.

121. C. A. Bouman, "AI in Scientific Imaging: Where is it Going?," *Washington University,* Saint Louis, MO, November 15, 2019.

122. C. A. Bouman, "Computational Imaging: Trends and Applications," *AFRL Aero Effects and Deep Turbulence Workshop,* Kirtland Air Force Base, NM, December 12, 2019.

123. C. A. Bouman, "Coherent Plug-and-Play: A Framework for Integrating AI and Physical Models in Coherent Optical Imaging Problems," *Invited talk at OSA Imaging and Applied Optics Congress,* June 26, 2020.

124. C. A. Bouman, "Plug and Play: A General Approach to AI and Sensor Model Fusion," *SIAG/Imaging Sciences Best Paper Prize Lecture, SIAM Imaging Sciences Conference,* July 10, 2020.

125. C. A. Bouman, "Thoughts on Applications of RASC for Inverse Problems in Imaging," *DoE Workshop on RASC: Randomized Algorithms for Scientific Computing,* December 3, 2020.

126. C. A. Bouman, "Emerging Algorithms for CT Imaging of Dynamic Objects," *Enabling 3D Mesoscale Imaging under Dynamic Conditions,* Los Alamos National Laboratory, July 21, 2021.

127. C. A. Bouman, "Emerging Algorithms for CT Imaging of Dynamic Objects," *Advanced Light Source Colloquium,* Lawrence Berkeley National Laboratory March 9, 2022.

128. C. A. Bouman, "Plug-and-Play: Framework for Integrating Physics and Machine Learning in CT Imaging," *University of Minnesota Colloquium,* April 5, 2022.

129. C. A. Bouman, "Emerging Algorithms for Tomographic Imaging," *JASON 2022 Spring Meeting,* MITRE Corporation, April 14, 2022.

130. C. A. Bouman, "Reducing the barriers to high performance imaging," Keynote to *High Performance Computing for Imaging* conference, Tuesday January 17, 2023.

131. C. A. Bouman, "Bending Out of the Box: The Marriage of Sensors and Computational Imaging," Invited Speaker at the *International Image Sensors Workshop*, Scotland, UK, Wednesday May 24, 2023.

132. C. A. Bouman, "Generative Plug-and-Play: The Saga Continues," Keynote Talk at the *Computational Cameras and Displays* workshop, Vancouver, BC, Sunday June 18, CVPR 2023.

133. C. A. Bouman, "Model Based Image Reconstruction (MBIR): Making Images from Data," Invited Speaker at the *2023 Gordon Research Conference on Chemical Imaging*, Stonehill College, Easton, MA, Thursday August 3, 2023.

134. C. A. Bouman, "Past, Present, and Future Methods for Sparse View CT," Invited Speaker at the *2023 Optica Imaging Congress: Applications of Digital Holography and 3D Imaging I*, Boston MA, Monday August 14, 2023.

135. C. A. Bouman, "Muti-Granular Optimization for Fast CT Reconstruction," Invited Speaker at the *Artificial Intelligence Modeling, Analysis, and Control of Complex Systems (AIMACCS) Workshop,* The Ohio State University, Columbus, OH May 8-9, 2024.

136. C. A. Bouman, "Machine Learning in Computational Imaging," Invited Speaker at the *2024 Gordan Research Conference on Imaging and Visualization at the Junction of Physics, Engineering and Data Science,* Grand Summit Hotel, Newry, Maine, June 12, 2024

137. C. A. Bouman, "Making Computational Imaging Useful," Invited Speaker at the *Institute for Mathematical and Statistical Innovation (IMSI) Workshop on Computational Imaging,* University of Chicago, Chicago, Illinois, August 8, 2024.

138. C. A. Bouman, "Computational Imaging: The Marriage of Sensors and Algorithms in Modern Imaging Systems," *Samsung Research America,* Dallas, TX, September 13, 2024.

139. C. A. Bouman, "Model Based Reconstruction for Hyperspectral Neutron Imaging," *2025 Computational Optical Sensing and Imaging (COSI),* Seattle, WA, August 20, 2025

140. C. A. Bouman, "Phase Recovery: A Unifying Theme in Computational Imaging," *2026 ICASSP Inverse Problems for Coherent X-rays (IPCX) Workshop,* Barcellona Spain, May 4, 2026

141. C. A. Bouman, "Past, Present, and Future Methods for Sparse View CT," *2026 CVPR 4th workshop on Vision-based InduStrial InspectiON (VISION),* Denver CO, June 3, 2026

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 Biomedial Imaging (ISBI)*, April 15-18, 2004.

9. C. A. Bouman, "Biomedical Optical Imaging," invited tutorial taught at the *IEEE International Symposium on Biomedial 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.