

# Curriculum Vitae

## Michael I. Miller

### (complete to 2015)

Herschel and Ruth Seder Professor of Biomedical Engineering  
Professor of Electrical and Computer Engineering  
Director, Center for Imaging Science  
Co-Director, Kavli Neuroscience Discovery Institute  
Gilman Scholar  
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#### Education

Ph.D. Biomedical Engineering, Johns Hopkins University, 1984  
M.S. Electrical Engineering, Johns Hopkins University, 1979  
B.S. Electrical Engineering, State University of New York at Stony Brook, 1976

#### Experience

- Co-Director, Kavli Neuroscience Discovery Institute. 2015 - Present
- Gilman Scholar, Johns Hopkins University. 2011 – Present
- Herschel and Ruth Seder Chair in Biomedical Engineering, Johns Hopkins University. 2004 - Present
- Professor, Johns Hopkins University. 1998 - Present
- Visiting Professor, École Normale Supérieure de Cachan, France. 2000, May 2002, May 2007, May 2009, May 2011, June 2014, June 2015
- Visiting Professor, Institute Henri Poincaré, France. November, 1998
- Visiting Professor, Brown University. 1994 -2000
- Newton R. and Sarah L. Wilson Chair in Biomedical Engineering, Washington University. 1995-1998
- Professor, Washington University St. Louis. 1992 - 1998
- Visiting Professor, Université René Descartes. November. 1997
- Associate Professor, Washington University St. Louis. 1986 - 1992
- Assistant Professor, Washington University St. Louis. 1984 - 1986
- Research Associate, Washington University St. Louis. 1983 - 1984

## Awards

- The John S. Laughlin 25<sup>th</sup> Anniversary Memorial Lecturer and Visiting Professor, Department of Medical Physics, Memorial Sloan Kettering Cancer Center, 2016
- Awarded "Best Lightning Talk" at the 2014 Annual Conference on Extreme Science and Engineering Discovery Environment, Atlanta, GA, USA,
- Awarded the Capers and Marion McDonald Award for Excellence in Mentoring and Advising, 2013
- Farrington Daniels Award for best paper published in Medical Physics, "Effect of Protocol and Obesity on Dose Conversion Factors in Adult Body CT", 2012
- Johns Hopkins University Gilman Scholar, 2011
- International Man of the Year, Warrant of Proclamation and Medal of Recognition from the International Biographical Centre, Cambridge England, 2003
- Honored Member Strathmore's Who's Who, 2002 - 2003
- 21st Century Award for Achievement, The International Biographical Centre, Cambridge, England 2002
- ISI Essential Science Indicators: Highest Increase in Total Citations in the field of Engineering, 2002
- Herschel Ruth Seder Professorship in Biomedical Engineering, The Johns Hopkins University, 2003
- International Order of Merit October, 2003
- Universal Award of Accomplishment, 2003
- Outstanding Intellectuals of the 21st Century, 2000
- The Newton R. and Sarah Louisa Glasgow Wilson Professor in Biomedical Engineering, Washington University in St. Louis, 1995
- National Science Foundation Presidential Young Investigator Award, 1986
- Johns Hopkins Paul Ehrlich Graduate Student Thesis Award, 1983
- IEEE Biomedical Engineering Thesis Award, First Prize, Tau Beta Pi 1982

## Professional Activities

1. Review Committee Member, Johns Hopkins University Academic Council Departmental Review, Psychology and Brain Science, School of Arts and Sciences, Baltimore, December 9 – 10, 2015
2. Review Committee Member, Department of Biostatistics Site Review, Bloomberg School of Public Health at Johns Hopkins, two day site visit, December 16-17, 2014
3. Dean Search Committee Member, Krieger School of Arts & Sciences, four day candidate interview process, November and December 2014
4. Panelist, P41 PI Meeting, National Institutes of Health, June 2014
5. Review Committee Member, Singapore Department of BME Site Visit, three day site visit, March 2014
6. Dean Search Committee Member, Whiting School of Engineering, four day candidate interview process, June and August 2013
7. Dean Search Committee Member, Krieger School of Arts & Sciences, four day candidate interview process, November and January 2011
8. Fellow of the American Institute for Medical and Biological Engineering, 1998 – Present
9. Member, The Academy of Science of St. Louis
10. Senior Member, IEEE, 1995 – Present
11. Member, American Institute for Medical & Biological Engineering, 1998 – Present
12. Member, Association for Research in Otolaryngology, 1994 – Present
13. Member, Biomedical Engineering Society, 2003-Present
14. Panelist, Science of the Arts, Baltimore, MD, October 2010
15. Panelist, Rising to the Challenge, Johns Hopkins University, New York City, April 2010
16. Consultant, Texas Higher Education Coordinating Board, Review of proposed PhD program in BME at The University of Texas, one day site visit, April 2009
17. Panelist, BIRN All Hands Meeting, Lead Standards and Deliverables Session, October 2003
18. Panelist, P41 PI Meeting, National Institutes of Health, June 2003
19. Panelist, P41 PI Meeting, National Institutes of Health, June 2002
20. Co-Chair, session on ATR Characterization and Metrics, 3rd Workshop on Conventional Weapon ATR, November 1997
21. Workshop Organizer, "Pattern-Theoretic Knowledge Representation," NIH, April 1996
22. Visiting Scientist, Geometry Institute, University of Minnesota, August Review Panelist, "Computational Biology," NSF, September 1995
23. Visiting Scientist and Panelist, Office of Naval Research Workshop, "Acquisition and Tracking of Maneuvering Targets from Image Sequence Data," organized by J. Abrahams, May 1995
24. Organizer, Information Theory Society, session on Markov Random Fields, November 1994
25. Visiting Scientist and Panelist, "Speech Recognition and Their Image Processing Cousins", June 1994
26. Panelist, Army Science Board Meeting, "Target Recognition: Fundamental Metrics," Lincoln Laboratory, July 1994

27. Panelist, Army Research Office, ATR Working Group, organized by R. D. Guenther, May 1994
28. Panelist, Harvard-M.I.T.-Brown Center for Intelligent Control Pattern Theory Group, organized by U. Grenander, January 1994
29. Visiting Scientist, The Newton Institute, "A Year in Computational Vision," Cambridge, England, invited by D. Mumford, October 1993
30. Panelist, Army Research Office Workshop, "The Future of Automated Target Recognition," invited by J. Chandra, November 1993
31. Panelist, NSF Workshop, "Biology and Emerging Technologies," Washington, D.C., October 1992
32. Panelist, DOD Tri-Service Workshop (ONR, ARO, AFOSR), Stochastic Methods in Image Analysis, "Deformable Templates," Adelphi, MD, May 1992
33. Visiting Scientist, Institut Mittag-Leffler, Stockholm, Sweden, invited by U. Grenander, July 1990
34. Visiting Scientist, Instituto de Calculo, "A Year in Statistics," Rome, Italy, invited by A. Frigessi, June 1990
35. Panelist, IBM-NSF-PYI Workshop, "Stochastic Optimization over Formal Languages on Massively Parallel Processors," IBM Thomas J. Watson Research Center, Yorktown Heights, NY, April 1989
36. Panelist, NSF Computational Engineering Proposal Review Program, Washington, D.C., March 1988

## Presentations (Invited)

1. Miller MI: *BrainClouds and the Aging Brain*, Workshop, Royal Institute of Technology (KTH), Stockholm, December 3, 2015 (invited)
2. Miller MI: *Computational Anatomy and Diffeomorphometry: 100 Years Since D'Arcy Thompson*, Red Raider Mini Symposium, Texas Tech University, Lubbock, November 6 – 7, 2015 (invited)
3. Miller MI: *Neuroinformatics, Computational Anatomy and Brain Clouds at the Morphome Scale*, Biomedical Research Imaging Center, University of North Carolina, September 30, 2015 (invited)
4. Miller MI: *On the Complexity of the Brain at 1mm Scale*, SAMSI Neuroscience Opening Workshop for the 2015-2016 SAMSI research program on Challenges in Computational Neuroscience (CCNS), North Carolina, August 17 -21, 2015 (invited)
5. Miller MI: *Bayesian Deformable Templates in Multi-Atlas Orbits in Computational Anatomy*, 3<sup>rd</sup> Biomedical Image Analysis Summer School: Modalities, Methodologies & Clinical Research, Institut Henri Poincare, Paris, France, July 6 – 10, 2015 (invited)
6. Miller MI: *Diffeomorphometry, Geodesic Positioning, and Hamiltonian Control for Estimating and Reconstructing Human Anatomy*, Advanced Study School on Imaging for Medical Applications (SSIMA), Sinaia, Romania, June 29 – July 4, 2015 (invited)
7. Miller MI: MRICloud Use regarding Computational Anatomy Gateway, XSEDE Science Gateway Community Call, Teleconference, May 29, 2015 (invited)
8. Miller MI: *Neuroinformatics, Computational Anatomy and Brain Clouds at the Morphome Scale*, Seventh International Workshop Statistical Analysis of Neuronal Data (SAND 7), University of Pittsburgh, Pittsburg, May 27-29, 2015 (invited)
9. Miller MI: *Big Data, Big Changes, Big Impact: Improving your Health and your Healthcare*, Booz Allen Hamilton, McLean, March 26, 2015 (Invited)
10. Miller MI: Quantitative brain mapping in neurological disorders, JHU-NIMHANS Translational Neuroscience Symposium, Johns Hopkins University, Baltimore, February 25 and 26, 2015 (Invited)
11. Miller MI: Bayesian Deformable Templates in Computational Anatomy, BrainClouds and Neurodegenerative Diseases, Erwin Schrodinger Institute, Workshop on Riemannian Geometry in Shape Analysis and Computational Anatomy, Vienna, February 16, 2015 (Invited)
12. Miller MI: *BrainClouds for High Throughput Radiological Workflows*, Dr. Fayad's Translational Research conference, Johns Hopkins University, Baltimore , January 29, 2015 (Invited)
13. Miller MI: *High throughput Neuroinformatics BrainClouds*, Johns Hopkins University, 4th Annual Hopkins Imaging Conference, Baltimore , November 5, 2014 (Invited)
14. Miller MI: *On a Theory of Shape and Form at the Morphome Scale: 100 Years Since D'Arcy Thomson* Hopkins BME Distinguished Lecture Series, Baltimore, November 3, 2014 (Invited)
15. Miller MI: *Diffeomorphometry, Geodesic Positioning and High Throughput Neuroinformatics*, University Pennsylvania, AMCS/PICS Colloquium, Baltimore, October 3, 2014 (Invited)
16. Miller MI: *Bayesian Deformable Templates in Multiple Atlas Orbits* The Medical Image Computing and Computer Assisted Intervention Society, Boston, September 18, 2014 (Invited)
17. Miller MI: *Bayesian Deformable Templates in Multiple Atlas Orbits*, Keynote speaker at Johns Hopkins BME Ph.D. Retreat, Ocean City, Maryland, September 12 and 13, 2014 (Invited)
18. Miller MI: *Computational Anatomy Gateway: Leveraging XSEDE Computational Resources for Shape Analysis*, 2014 Annual Conference on Extreme Science and Engineering Discovery Environment, Atlanta, July 13 - 18, 2014 (Invited)
19. Miller MI: *Geodesic Positioning Systems for Biological Coordinate Systems and High Throughput Informatics* National Research Council of the National Academies Workshop, Washington, D.C., May 17, 2014 (Invited)

20. Miller MI: *Computational Anatomy and High throughput Neuroinformatics BrainClouds*, Vanderbilt University, Department of Electrical Engineering, Nashville, Tennessee , March 6, 2014 (Invited)
21. Miller MI: *Computational Anatomy and High throughput Neuroinformatics Brain Clouds*, National University of Singapore, Department of Biomedical Engineering, Singapore, March 11 and 12, 2014 (Invited)
22. Miller MI: *Computational Anatomy and High throughput Neuroinformatics BrainClouds*, Centre for Mathematics, CMLA, June 2013 (Invited)
23. Miller, MI: *The development of a population of 4D pediatric XCAT phantoms for CT imaging research and optimization*, Proc. SPIE 9033, Medical Imaging 2014: Physics of Medical Imaging, 90331V, San Diego, February 15-20, 2014 (Invited)
24. Miller MI & Mori S: *MRI as a Tool for Diagnosing Chronic Traumatic Encephalopathy* The Neuropathology of Chronic Traumatic Encephalopathy, Neuroscience Center, Bethesda, Maryland. December 2012 (Invited)
25. Miller MI: *Segmentation via the Random Multi-Atlas Orbit Model* MICCAI Conference, Nice, France. October 2012 (Invited)
26. Miller MI: *Computational Anatomy and High Throughput: Neuroinformatics at 1mm Scale* The Johns Hopkins Brain Science Institute, Brain Night, Baltimore, Maryland. September 2012 (Invited)
27. Miller MI: *The Random Atlas Model in Computational Anatomy and High Throughput Image Informatics* MITAS Conference, Mathematics of Brain Imaging, Simon Frasier University, Burnaby BC. June 2012 (Invited)
28. Miller MI: *Diffeomorphic Shape Momentum and Neuroinformatics* ICM Distinguished Seminar Series, Johns Hopkins University, Baltimore, Maryland. September 2011 (Invited)
29. Miller MI: *Diffeomorphic Shape Momentum, Computational Anatomy, and Neuroinformatics at 1mm Scale* Mathematics of Medical Imaging Conference, Fields Institute, Toronto, Canada. June 2011 (Invited)
30. Miller MI: *Computational Anatomy and High Throughput Image Informatics* Lecture, INRIA Sophia, France. May 2011. (Invited)
31. Miller MI: *Anatomic Data Analysis: Comparing Populations (Subcortical Structures)* ISMRM Conference, Montreal, Quebec, Canada. May 2011. (Invited)
32. Miller MI: *Computational Functional Anatomy* Welcome Lecture, Oxford University, London, England. June 2010. (Invited)
33. Miller MI: *Neural Imaging, Signal Analysis, and Image Processing* NEBEC Conference, Columbia University, NY. March 2010. (Invited)
34. Miller MI: *Computational Functional Anatomy and the Diffeom Project* BME Seminar Series, Stony Brook University, NY. March 2010. (Invited)
35. Miller M.: *Computational Functional Anatomy* CIS SHAPE Retreat, Johns Hopkins University, Baltimore, MD. January 2010. (Invited)
36. Miller M.: *Computational Functional Anatomy* NAMIC Conference, Salt Lake City, UT. January 2010. (Invited)
37. Miller MI: *Computational Functional Anatomy* Distinguished Seminar Series on Vision, University of MD. College Park, MD. March 13, 2009. (Invited)
38. Miller MI, Mori S: *MRI/DTI Image Analysis Tools Based on Large Deformation Diffeomorphic Metric Mapping* NIH Seminar. NIH. April 01, 2008. (Invited)
39. Miller MI: *Image Co-Registration and Warping* FM Kirby Research Center for Functional Brain Imaging Research Retreat. Mt. Washington MD. May 30, 2008. (Invited)

40. Miller MI: *Computational Functional Anatomy* Mathematical Biosciences Institute. Ohio State University. June 10, 2008. (Invited)
41. Miller MI: *Computational Functional Anatomy* Dept of Psychiatry & Behavioral Sciences Speaker Series. Feinberg School of Medicine, Northwestern University. June 20, 2008. (Invited)
42. Miller MI: *Computational Anatomy of Shape using Pattern Theory* IPAMM Mathematics in Brain Imaging. UCLA. July 15, 2008. (Invited)
43. Miller MI: *Computational Functional Anatomy in Diseased Brain* NIH Blueprint for Neuroscience Research. NIH. September 23, 2008. (Invited)
44. Miller MI: *The Emergent Discipline of Computational Functional Anatomy* Inaugural Symposium AMCS at UPenn. September 27, 2008. (Invited)
45. Miller MI: *Computational Functional Anatomy on the TeraGrid* SuperComputing 2008 Conference. Austin, TX, November 19, 2008. (Invited)
46. Miller MI: *Computational Functional Anatomy* IEEE BioCAS Conference. Baltimore, MD. November 22, 2008 (Invited)
47. Miller MI: *Shapes in Medical Imaging: Computational Anatomy* SAMSI Workshop. Research Triangle Park, NC. July 08, 2007. Invited by Laurent Younes (Invited)
48. Miller MI: *Computational Functional Anatomy* IPAM Random Space Shapes Workshop. Los Angeles, CA. May 24, 2007. Invited by Paul Thompson (Invited)
49. Miller MI: *Computational Functional Anatomy* Mathematical Methods for Medical Image Analysis Conference. Banff, Canada. November 05, 2007. Invited by Ghassan Harnarneh (Invited)
50. Miller MI: *Project 4 Presentation* Cardiovascular Research Grid External Advisory Board Meeting. Johns Hopkins University. October 22, 2007. (Invited by Rai Winslow)
51. Miller MI: *Integrative Image Analysis* Institute for Computational Analysis Presentation. Johns Hopkins University, Baltimore, MD. February 20, 2006. Raimond Winslow (Invited)
52. Miller MI: *Paths Towards Understanding the Shapes of the Whole Brain* IMA Workshop on Shape Spaces. Minneapolis, MN. April 03, 2006. David Mumford and Laurent Younes (Invited)
53. Miller MI: *Computational Anatomy and the Infinite Dimensional Diffeomorphisms* SIAM Annual Meeting. Boston, MA. July 13, 2006. Carlos Castillo-Chavez and Ricardo Cortez (Invited)
54. Miller MI: *Informal Talk* EP Differentials Workshop. Santa Fe, NM. July 26, 2006. Invited by Darryl Holm and Laurent Younes (Invited)
55. Miller MI: *The Emergent Discipline of Computational Anatomy* SCI Institute Seminar. Salt Lake City, UT. September 22, 2006. Invited by Chris Johnson (Invited)
56. Miller MI: *Computational Anatomy and the Infinite Dimensional Diffeomorphisms* MBI Workshop. Columbus, OH. September 26, 2006. Raimond Winslow (Invited)
57. Miller MI: *Concept of Biomedical Engineering* JHU Biomedical Engineering Retreat. Baltimore, MD. May 23, 2005. Eric Young (Invited)
58. Miller MI: *Plenary Talk* Morphometry Biomedical Informatics Research Network Spring Conference. Miami Beach, FL. March 02, 2005. Jorge Jovicich (Invited)
59. Miller MI: *Results/Challenges in 3D Medical Shape Analysis* Statistical Inferences on Shape Manifolds Workshop. Palo Alto, CA. May 06, 2005. David Mumford (Invited)
60. Miller MI: *Applications of Computational Anatomy to Mental Illness* The Whitaker Foundation Leadership Award Site Visit. Baltimore, MD. March 29, 2005. Murray Sachs (Invited)

61. Miller MI: *Informal Talk Shape Analysis Retreat*. Baltimore, MD. October 17, 2005. Laurent Younes (Invited)
62. Miller MI: *Advances in Imaging Sciences* The Whitaker Foundation Leadership Award Site Visit. Johns Hopkins University, Baltimore, MD. March 18, 2004. Murray Sachs (Invited)
63. Miller MI: *Emerging Field of Computational Anatomy* IPAM's Graduate Summer School: Mathematics in Brain Imaging. Los Angeles, CA. July 12, 2004. Invited by Paul Thompson (Invited)
64. Miller MI: *Going from Structural Maps to Functional Imagery: Initiatives in DTI and fMRI* F.M. Kirby Research Center for Functional Brain Imaging Retreat. Baltimore, MD. October 30, 2004. Dr. Peter van Zijl (Invited)
65. Miller MI: *Intel Technology for Imaging Science and Computational Anatomy* HPC Roundtable. Portland, OR. March 17, 2004. Dr. David Barkai (Invited)
66. Miller MI: *Clutter Metrics for ATR* Dayton, OH. December 01, 2004. (Invited)
67. Miller MI: *Metrics and Euler-Lagrange Equations of Computational Anatomy* CAIP Center Seminar. Rutgers University. February 24, 2003. invited by Dr. Ed Devinney (Invited)
68. Miller MI: *Technologies for a Center of Excellence in Homeland Security* Mt. Washington Valley Economic Council Talk. North Conway, NH. March 06, 2003. invited by John Bruni (Invited)
69. Miller MI: *Metrics and Euler-Lagrange Equations of Computational Anatomy* IPAM UCLA Seminar. Los Angeles, CA. April 08, 2003. invited by Song Chun Zhu (Invited)
70. Miller MI: *Computational Anatomy: An Emerging Discipline* GRASP Laboratory Seminar, Computer Science. University of Pennsylvania. April 10, 2003. invited by James Gee (Invited)
71. Miller MI: *Photo/Geo Metric Spaces for Image Analysis* ONR PI Meeting. University of Minnesota. May 09, 2003. invited by Dr. Guillermo Sapiro (Invited)
72. Miller MI: *The Emerging Discipline of Computational Anatomy* Conformal Brain Mapping Meeting. Townsend, TN. May 20, 2003. invited by Ken Stephenson (Invited)
73. Miller MI: *Image Analysis in the 21st Century* The JASONS Program. San Diego, CA. July 08, 2003. invited by Dr. Robert Henderson (Invited)
74. Miller MI: *Computational Anatomy and Models for Image Analysis* BC Inverse Problems and Medical Imaging Workshop. Vancouver, BC. August 06, 2003. invited by Dr. John Schotland (Invited)
75. Miller MI: *Computational Neuropsychiatry and Computer Vision: Some Applications to Psychiatry* JHU Department of Psychiatry Weekly Research Conference. Johns Hopkins University, Baltimore, MD. October 07, 2003. invited by Russell Margolis (Invited)
76. Miller MI: *Models for Image Analysis and Computational Anatomy* Computational Sciences Lecture Series. University of Wisconsin, Madison, WI. October 30, 2003. invited by Dr. Robert Nowak (Invited)
77. Miller MI: *Computational Anatomy and Models for Image Analysis* Institute for Systems Research, Seminar. University of Maryland, College Park, MD. November 05, 2003. invited by Dr. P.S. Krishnaprasad (Invited)
78. Miller MI: *I-3* Presentation to IBM representatives. Johns Hopkins University, Baltimore, MD. November 11, 2003. (Invited)
79. Miller MI: Plenary Speaker, Society for Mathematical Biology, Knoxville TN, June 2002 (Invited)
80. Miller MI: *On the Metrics and Variational Equations of Computational Anatomy* SIAM Life Sciences 2002. Boston, MA. March 06, 2002. (Invited)
81. Miller MI: *Information Theory of Automatic Target Recognition* Northrop Grumman Space System Division Seminar. Azusa, CA. January 22, 2002. (Invited)



82. Miller MI, Ratnanather JT: *Development and Validation of New Tools for Computational Anatomy* Conte Center Executive Committee Meeting. JHU. February 12, 2002. (Invited)
83. Miller MI, van Zijl P: *Overview of Resource for Quantitative Functional MRI* National Center for Research Resources PI Meeting. Bethesda, MD. June 24, 2002. (Invited)
84. Miller MI: *Computational Anatomy: An Emerging Discipline* Annual Meeting of the Society for Mathematical Biology and International Conference on Mathematics and Biology. Knoxville, TN. July 13, 2002. Plenary Speaker (Invited)
85. Miller MI: *The Euler-Lagrange Equations of Computational Anatomy* Reunion Conference for the Geometrically Based Motions IPAM Program. Lake Arrowhead, CA. September 16, 2002. (Invited)
86. Miller MI: *On the Metrics and Euler-Lagrange Equations of Computational Anatomy* Image Analysis and Understanding Data from Scientific Experiments. Los Alamos National Laboratory, Los Alamos, NM. December 02, 2002. (Invited)
87. Miller MI: *The Emerging Discipline of Computational Anatomy* Computer Surgery. The National Library of Medicine. January 16, 2001. (Invited)
88. Miller MI: *Image Understanding* NSF Science and Technology Center Site Review. Rutgers University, NJ. October 10, 2001. (Invited)
89. Miller MI: *Pattern Based Computing* Santa Rosa Darpa Meeting. Santa Rosa, CA. June 25, 2001. (Invited)
90. Miller MI: *Metric Spaces for Clutter Invariant ATR* Wright Patterson Air-Force Base. August 08, 2001. (Invited)
91. Miller MI: *Computational Anatomy* NIH/NIAA Workshop. Bethesda, MD. September 10, 2001. (Invited)
92. Miller MI: *The Information Theory for Optimal Aimpoint Selection via Multiple Sensors* Office of Naval Research (ONR), Marine Corps Review. Quantico, VA. March 02, 2001. (Invited)
93. Miller MI: *Impact of NPACI on Computational Anatomy* NPACI All hands Meeting. San Diego, CA. February 27, 2001. (Invited)
94. Miller MI: *The Future of Computational Imaging Science* Donald L. Snyder Workshop. Washington University. January 15, 2000. (Invited)
95. Miller MI: *Computational Anatomy: An Emerging Discipline* University of Minnesota's Symposium on Brain Imaging. IMA, University of Minnesota. October 13, 2000. (Invited)
96. Miller MI: *Pattern Based Computing* DARPA Workshop on Future of Pattern Based Computing. San Diego, CA. October 24, 2000.
97. Miller MI: *Performance Analysis of Multiple Sensor Systems in Automatic Target Recognition* Office of Naval Research MURI Review. Johns Hopkins University, Baltimore, MD. November 10, 2000.
98. Miller MI: *Deformable Templates and Image Understanding* The Applied Physics Laboratory, JHU. March 03, 2000. (Invited)
99. Miller MI: *Computational Anatomy: An Emerging Discipline* Symposium on Inference for Stochastic Processes. University of Georgia, Athens, GA. May 12, 2000. (Invited)
100. Miller MI: *Information Theory, Image Understanding, Automated Target Recognition* DARPA Workshop on Future of Image Analysis. University of Colorado. August 06, 2000. (Invited)
101. Miller MI: *The Information Theory of Imaging Science* Mathematics and Image Analysis 2000. Ecole Polytechnique, Paris, France. September 27, 2000. (Invited)
102. Miller MI: *ATR: Automated Target Recognition* Thomson-CSF Research Laboratory, Palaiseau, France. September 28, 2000. (Invited)

103. Miller MI: *CIS Meets Lincoln Lab ATR Group* MIT, Boston, MA. June 18, 1999. (Invited)
104. Miller MI: *Metrics and Performance Bounds for ATR* Automated Target Recognition Working Group. February, 1999. (Invited)
105. Miller MI: *The Future of Computational Imaging Science* Workshop on Computational Science and Information Technology. Florida State University. November 04, 1999. (Invited)
106. Miller MI: *The Future of Medical Imaging* Florida State University. March, 1999. (Invited)
107. Miller MI: *Computational Anatomy: An Emerging Discipline* The First F.M. Kirby Symposium on Functional Brain Imaging. Johns Hopkins University, Baltimore, MD. May, 1999. (Invited)
108. Miller MI: *Imaging Science and Engineering, Multi Sensor, Multi-Scale, Multi-Organ* JHU, Whitaker Institute, Baltimore, MD. September 08, 1998. (Invited)
109. Miller MI: *ATR and Image Understanding in the Center for Imaging Science* 1998 Annual Review Brown MURI/CIS. Brown University. April 21, 1998. (Invited)
110. Miller MI: *Inference in Parameter Spaces of Varying Dimension* Newton Institute, A Year in Computer Vision. Cambridge, England. October, 1993. Invited by D.B. Mumford
111. Miller MI: *Massively Parallel Computation for Hierarchical Imaging Systems* University of Minnesota. May, 1990. (Invited)

## Published Books

- Ulf Grenander and Michael I. Miller. *Pattern Theory From Representation to Inference*. Oxford University Press, 2006. (ISBN 0-19-850570-1) (*Published*)
- Donald L. Snyder and Michael I Miller. *Random Point Processes in Time and Space*. Springer-Verlag New York, LLC, 1991. (ISBN 0-387-97577-2) (*Published*)

## Published Book Chapters

1. Feng, J., Xiaoying Tang, Minh Tang, Carey Priebe, and Michael Miller. "Metric Space Structures for Computational Anatomy." Springer International Publishing, 2013. 123-130 (ISBN: 978-3-319-02266-6 (Print) 978-3-319-02267-3 (Online))
2. Srivastava A, Lanterman AD, Grenander U, Loizeaux M, Miller MI. "Monte Carlo Techniques for Automated Target Recognition." *Sequential Monte Carlo Methods in Practice*. Springer-Verlag New York, LLC, 2001. 533-552. (ISBN 0-387-95146-6) (*Published*)
3. Srivastava, A, Miller MI, Grenander U. "Bayesian Automated Target Recognition." *Handbook of Video and Image Processing*. Academic Press (Elsevier Science & Technology Books), 2000. 869-882. (ISBN 0-121-19790-5)
4. Miller MI, Joshi S, Christensen CE. "Large Deformation Fluid Diffeomorphisms for Landmark, Image Matching." *Brain Warping*. Academic Press (Elsevier Science & Technology Books), 1999. 115-132. (ISBN 0-126-92535-6)
5. Srivastava A, Miller MI, Grenander U. "Ergodic Algorithms on Special Euclidean Groups for ATR." *System and Control in the 21st Century*. Birkhauser Verlag, 1996. 327-350. (ISBN 0-817-63881-4)
6. Mark KE, Miller MI, Grenander U. "Constrained Stochastic Language Models." *Image Models and their Speech Model Cousins*. Springer-Verlag New York, LLC, 1996. 131-140. (ISBN 0-387-94806-6)
7. Schmich RM, Miller MI. "Stochastic Intensity of Neural Spike Discharge Based on Active Channel Dynamics. ." *Computational Neuroscience: Trends in Research 1995*. Academic Press (Elsevier Science & Technology Books), 1996. 125-130. (ISBN 0-121-21041-3)
8. Vannier MW, Miller MI, Grenander U. "Modeling and Data Structure for Registration to a Brain Atlas of Multidimensional Images." *Functional Neuroimaging: Technical Foundations*. Academic Press (Elsevier Science & Technology Books), 1994. 217-221. (ISBN 0-126-85845-4)
9. Wang J, Miller MI, Ogielski AT. "A Stochastic Model of Synaptic Transmission and Auditory Nerve Discharge (Part I)." *Computation in Neurons and Neural Systems*. Springer-Verlag New York, LLC, 1994. 147-152. (ISBN 0-792-39465-8)
10. Wang J, Miller MI, Ogielski AT. "A Stochastic Model of Synaptic Transmission and Auditory Nerve Discharge (Part II)." *Computation in Neurons and Neural Systems*. Springer-Verlag New York, LLC, 1994. 153-158. (ISBN 0-792-39465-8)
11. Miller MI, Joshi SC, Maffitt DR, McNally JG, Grenander U. "Membranes, Mitochondria, and Amoebae: 1, 2, and 3 Dimensional Shape Models." *Advances in Applied Statistics (Statistics and Images: 2)*. Carfax Publishing Company, 1994. 141-163. (ISBN 0-902-87945-6)
12. Snyder DL, Politte DG, Miller MI. "Case Study in Statistical Image Processing: Positron Tomography." *Spatial Statistics and Imaging*. Institute of Mathematical Statistics, 1992. 368-381. (ISBN 0-940-60027-7)
13. Miller MI, Fuhrmann DR, O'Sullivan JR, Snyder DL. "Maximum-Likelihood Methods for Toeplitz Covariance Estimation and Radar Imaging." *Advances in Spectrum Analysis and Array Processing*. Prentice Hall Professional Technical Reference, 1989. 145-172. (ISBN 0-130-08574-X)
14. Karamanos N, Miller MI. "A New Method for Estimating Stimulus and Refractory Related Functions from Auditory-Nerve Discharges." *Basic Issues in Hearing: Proceedings of the Eighth International Symposium on Hearing*. Academic Press (Elsevier Science & Technology Books), 1988. 185-195. (ISBN 0-122-23346-8)
15. Miller, MI. "Application of Likelihood and Entropy for Toeplitz Constrained Covariance Estimation." *Maximum-Entropy and Bayesian Methods in Science and Engineering*. Kluwer Academic Publishers, Dordrecht Boston, 1988. 357-362. (ISBN 9-02772-792-9) (*Published*)

## Publications: Archival Journals

1. Miller, M.I., Troune, A., and Younes, L. (2015). Hamiltonian Systems and Optimal Control in Computational Anatomy: 100 Years Since D'Arcy Thompson. *Annu Rev Biomed Eng* 17, 447-509.
2. Wu, D., Ma, T., Ceritoglu, C., Li, Y., Chotiyanonta, J., Hou, Z., Hsu, J., Xu, X., Brown, T., Miller, M.I., and Mori, S. (2015). Resource atlases for multi-atlas brain segmentations with multiple ontology levels based on T1-weighted MRI. *Neuroimage* 125, 120-130.
3. Tang, X., Holland, D., Dale, A.M., and Miller, M.I. (2015). APOE Affects the Volume and Shape of the Amygdala and the Hippocampus in Mild Cognitive Impairment and Alzheimer's Disease: Age Matters. *J Alzheimers Dis* 47, 645-660.
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## Publications: Conference Proceedings and Posters

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98. Miller MI, Sachs MB. "Temporal representation of CV syllables in populations of auditory-nerve fibers". *Journal of the Acoustical Society of America* 70. Suppl 1 (1981):S9 (*Published*)
99. Lanterman AD, Miller MI, Snyder DL. "Representations of thermodynamic variability in the automated understanding of FLIR scenes". *Automatic Object Recognition VI*, 1996 Apr; Orlando, FL. Proceedings of the SPIE International Society of Optical Eng., Edited by F.A. Sadjadi 2756 (1996):26-37 (*Published*)

100. Haller JW, Banerjee A, Christensen GE, Snyder AZ, Miller MI, Raichle ME. "High Dimensional Transformation of PET and MRI to Atlas Space". 2nd International Conference on Functional Mapping of the Human Brain, 1996 Jun 21; Boston, MA (1996) (*Published*)
101. Csernansky JG, Haller JW, Banerjee A, Wang L, Joshi SC, Christensen GE, Gado M, Vannier MW, Miller MI. "A Comparison of the Hippocampus in Schizophrenia and Control Subjects using Automated Methods for Neuromorphometry". 35th Annual Meeting of the ACNP, 1996 Dec; San Juan, Puerto Rico (1996) (*Published*)
102. Christensen GE, Joshi SC, Miller MI. "Individualizing Anatomical Atlases of the Head". 4th International Conference on Visualization in Biomedical Computing, 1996 Sep; Hamburg, Germany, Edited by K.H. Höhne, and R. Kikinis (1996):343-348 (*Published*)
103. Cooper M, Lanterman AD, Joshi SC, Miller MI. "Representing the Variation of Thermodynamic State via Principal Components Analysis". 3rd workshop on Conventional Weapon ATR, 1996 Nov; Huntsville, AL (1996):479-490 (*Published*)
104. Banerjee A, Christensen GE, Haller J, Joshi SC, Miller MI, Raichle M. "Accommodating Anatomical Variability in Functional Imaging via Deformable Templates". 33rd Annual Allerton Conference on Communication, Control and Computing, 1995 Oct; Monticello, IL (1995):212 (*Published*)
105. Mark KE, Miller MI, Grenander U. "Markov Random Field Models for Natural Language". IEEE International Symposium on Information Theory, 1995 Sep; British Columbia, Canada (1995):392 (*Published*)
106. Foltz MA, Srivastava A, Miller MI, Grenander U. "Detection of multiple airborne targets from multisensor data". Radar/Ladar Processing, 1995 Jul; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by W.J. Miceli 2562 (1995):162-171 (*Published*)
107. Lanterman AD, Miller MI, Snyder DL. "Unification of detection, tracking, and recognition for millimeter wave and infrared sensors". Radar/Ladar Processing, 1995 Jul; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by W.J. Miceli 2562 (1995):150-161 (*Published*)
108. Joshi SC, Wang J, Miller MI, Van Essen DC, Grenander U. "Differential geometry of the cortical surface". Vision Geometry IV, 1995 Jul; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by R.A. Melter, A.Y. Wu, F.L. Bookstein, and W.D.K. Green 2573 (1995):304-311 (*Published*)
109. Joshi SC, Miller MI, Christensen GE, Banerjee A, Coogan T, Grenander U. "Hierarchical brain mapping via a generalized Dirichlet solution for mapping brain manifolds". Vision Geometry IV, 1995 Jul; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by R.A. Melter, A.Y. Wu, F.L. Bookstein, and W.D.K. Green 2573 (1995):278-289 (*Published*)
110. Rabbitt RD, Weiss JA, Christensen GE, Miller MI. "Mapping of hyperelastic deformable templates using the finite element method". Vision Geometry IV, 1995 Jul; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by R.A. Melter, A.Y. Wu, F.L. Bookstein, and W.D.K. Green 2573 (1995):252-265 (*Published*)
111. Lanterman AD, Miller MI, Snyder DL. "Implementation of jump-diffusion algorithms for understanding FLIR scenes". Automatic Object Recognition V, 1995 Apr; Orlando, FL. Proceedings of the SPIE International Society of Optical Eng., Edited by F.A. Sadjadi 2485 (1995):309-320 (*Published*)
112. Haller JW, Christensen GE, Miller MI, Joshi SC, Gado M, Csernansky JG, Vannier MW. "Comparison of automated and manual segmentation of hippocampus MR images". Medical Imaging 1995: Image Processing, 1995 Feb; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by M.H. Loew 2434 (1995):206-215 (*Published*)
113. Haller JW, Christensen GE, Joshi SC, Gado M, Miller MI, Vannier MW. "Precision and Accuracy of a High Dimensional Transformation and Segmentation of MR Images of the Hippocampus". Information Processing in Medical Imaging: 14th International Conference, 1995 Jun; Brest, France, Edited by Y. Bizais, C. Barillot, and R. Di Paola (1995):401-402 (*Published*)
114. Christensen GE, Rabbitt RD, Miller MI, Joshi SC, Grenander U, Coogan T, Van Essen D. "Topological Properties of Smooth Anatomic Maps". Information Processing in Medical Imaging: 14th International Conference, 1995 Jun; Brest, France, Edited by Y. Bizais, C. Barillot, and R. Di Paola (1995):101-112 (*Published*)

115. Schmich RM, Miller MI. "Stochastic Intensity of Hodgkin-Huxley-Based Spike generation Models". 18th Annual Midwinter Research Meeting of the Association for Research in Otolaryngology, 1995 Feb. (1995) (*Published*)
116. Christensen GE, Miller MI, Marsh JL, Vannier MW. "Automatic Analysis of Medical Images Using a Deformable Textbook". International Symposium on Computer Communication Systems for Image Guided Diagnosis and Therapy, 1995 Jun, Edited by H.U. Lemke, K. Inamura, D. Jaffe, and M.W. Vannier (1995):146-151 (*Published*)
117. Lanterman AD, Miller MI, Snyder DL. "Automatic Target Recognition via the Simulation of Infrared Scenes". 6th Annual Ground Target Modeling and Validation Conference, 1995 Aug; Houghton, MI (1995):195-204 (*Published*)
118. Christensen GE, Miller MI, Vannier MW. "A 3-D Deformable Magnetic Resonance Textbook Based on Elasticity". 1994 AAAI Spring Symposium: Applications of Computer Vision in Medical Imaging, 1994 Mar; Palo Alto, CA (1994) (*Published*)
119. Srivastava A, Miller MI, Grenander U. "Lie Group Parametrization for Dynamics based prior in ATR". 1994 Sixth IEEE Digital Signal Processing Workshop, 1994 Oct; Yosemite National Park, CA (1994):97-100 (*Published*)
120. O'Sullivan JA, Mark K, Miller MI. "Markov Random Fields on Graphs for Natural Languages". 1994 IEEE-IMS Workshop on Information Theory and Statistics, 1994 Oct; Alexandria, VA (1994):47 (*Published*)
121. Lanterman AD, Miller MI, Snyder DL, Miceli WJ. "Jump-diffusion processes for the automated understanding of FLIR scenes". Automatic Object Recognition IV, 1994 Apr; Orlando, FL. Proceedings of the SPIE International Society of Optical Eng., Edited by F.A. Sadjadi 2234 (1994):416-427 (*Published*)
122. O'Sullivan JA, Jacobs SP, Miller MI, Snyder DL. "A Likelihood-based Approach to Joint Target Tracking and Identification". 27th Asilomar Conference on Signals, Systems and Computers, 1993 Nov; Pacific Grove, CA 1 (1993):290-294 (*Published*)
123. Srivastava A, Teichman RS, Miller MI, Snyder D, O'Sullivan JA. "Jump-diffusion Based Sampling Algorithm for Target Tracking and Recognition". 27th Asilomar Conference on Signals, Systems and Computers, 1993 Nov; Pacific Grove, CA 2 (1993):1181-1185 (*Published*)
124. Miller MI, Amit Y, Grenander U. "Jump-Diffusion Processes for Unknown Model Order Estimation Problems". 1993 IEEE International Symposium on Information Theory, 1993 (1993):185 (*Published*)
125. Schaeewe TJ, Miller MI. "A model-Based Approach to Magnetic Resonance Image Estimation". 1993 IEEE International Symposium on Information Theory, 1993 (1993):134 (*Published*)
126. O'Sullivan JA, Du KC, Teichman RS, Miller MI, Snyder DL, Vannicola VC. "Reflectivity models for radar target recognition". Proceedings of the SPIE International Society of Optical Engineering 1960 (1993):152-161 (*Published*)
127. Preza C, Miller MI, Conchello JA. "Image reconstruction for 3D light microscopy with a regularized linear method incorporating a smoothness prior". Proceedings of the SPIE International Society of Optical Engineering 1905 (1993):129-149 (*Published*)
128. Christensen GE, Rabbitt RD, Miller MI. "A Deformable Neuroanatomy Textbook Based on Viscous Fluid Mechanics". 27th Annual Conference on Information Sciences and System, 1993 Mar; Baltimore, MD, Edited by J. Prince and T. Runolfsson (1993):211-216 (*Published*)
129. Snyder DL, Lanterman AD, Miller MI. "Regularizing Images in Emission Tomography via an Extension of Good's Roughness Penalty". Conference Record of the 1992 IEEE Nuclear Science Symposium and Medical Imaging Conference, 1992. 2 (1992):1223 (*Published*)
130. Smith KR, Miller MI. "Iterative Bayesian method for segmenting images that have undergone a gray-level degradation". Sensor Fusion IV: Control Paradigms and Data Structures, 1991 Nov; Boston, MA. Proceedings of the SPIE International Society of Optical Eng., Edited by P.S. Schenker 1611 (1992):555-563 (*Published*)
131. Christensen GE, Miller MI, Amit Y, Grenander U. "Global Shape Models for Anatomical Structures". 26th Annual Conference on Information Sciences and System, 1992 Mar; Princeton, NJ, Edited by H.V. Poor, and S.C. Schwartz (1992):356 (*Published*)

132. Mark K, Miller MI, Grenander U. "Parameter Estimation for Constrained Context Free Language Models". 5th DARPA Speech and Annual Language Workshop, 1992 Feb; Harriman, NY (1992):146-149 (*Published*)
133. Grenander U, Miller MI, Christensen GE. "Deformable Anatomical Databases using Global Shape Models: A Position Paper for the 1992 Electronic Imaging of the Human Body Workshop". Cooperative Working Group on Whole Body 3-D Electronic Imaging of the Human Body, 1992 Mar (1992) (*Published*)
134. Miller MI, O'Sullivan JA. "On the Entropy of Random Branching Processes". Proceedings. 1991 IEEE International Symposium on Information Theory, 1991 (1991):20 (*Published*)
135. Butler CS, Miller MI. "Maximum A Posteriori Estimation for SPECT using Regularization Techniques on Massively-parallel Computers". Conference Record of the 1991 IEEE Nuclear Science Symposium and Medical Imaging Conference, 1991. 3 (1991):2001-2005 (*Published*)
136. Grenander U, Miller MI. "An Application of the Global Model". Proceedings of the Seventh Workshop on Multidimensional Signal Processing, 1991. (1991):P.5 (*Published*)
137. Miller MI, Roysam B, Smith KR. "Automated Segmentation of Biological Shapes in Electron Microscopic Autoradiography". 25th Annual Conference on Information Sciences and System, 1991 Mar; Baltimore, MD, Edited by F. Davidson and J. Goutsias (1991) (*Published*)
138. Roysam B, Miller MI. "Stochastic Representation of Memoryless Boolean Functions: Application to Boundary Estimation at Low Contrast". 1990 International Conference on Acoustics, Speech, and Signal Processing, 1990 Apr; Albuquerque, NM 4 (1990):2333-2336 (*Published*)
139. Smith KR, Miller MI. "A Bayesian Approach Incorporating Rissanen Complexity for Learning Markov Random Field Texture Models". 1990 International Conference on Acoustics, Speech, and Signal Processing, 1990. ICASSP-90. 4 (1990):2317-2320 (*Published*)
140. Schaewe TJ, Miller MI. "Maximum likelihood reconstruction algorithm for magnetic resonance imaging". Medical Imaging IV: Image Formation, 1990 Feb; Newport Beach, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by R.H. Schneider 1231 (1990):188-194 (*Published*)
141. Miller MI. "Stochastic Representations of Formal Languages". The 1989 IEEE/CAM Information Theory Workshop at Cornell, 1989 Jun; Ithaca, NY. (1989):8\_4 (*Published*)
142. Roysam B, Miller MI. "A Unified Approach for Hierarchical Imaging Based on Joint Hypothesis Testing and Parameter Estimation". 1989 International Conference on Acoustics, Speech, and Signal Processing, 1989. ICASSP-89. 3 (1989):1779-1782 (*Published*)
143. Smith KR, Miller MI. "Learning regular grammars on connection architectures". 1989 International Conference on Acoustics, Speech, and Signal Processing, 1989. ICASSP-89. 4 (1989):2501-2504 (*Published*)
144. Fuhrmann DR, Miller MI. "Maximum-likelihood Wideband Direction-of-arrival Estimation". Sixth Multidimensional Signal Processing Workshop, 1989. (1989):133-134 (*Published*)
145. Roysam B, Shrauner JA, Miller MI. "Bayesian Imaging using Good's Roughness Measure-Implementation on a Massively Parallel Processor". 1988 International Conference on Acoustics, Speech, and Signal Processing, 1988. ICASSP-88. 2 (1988):932-935 (*Published*)
146. Miller MI, Turmon MJ, O'Sullivan JA, Snyder DL. "Spectrum Estimation via Maximum Likelihood Estimation of Toeplitz Constrained Covariances". Fourth Annual ASSP Workshop on Spectrum Estimation and Modeling, 1988. (1988):182-185 (*Published*)
147. Roysam B, Miller MI. "Grammars and Bayes Priors for Hierarchical Image Processing on Massively Parallel Processors". 26th Annual Allerton Conference on Communication, Control and Computing, 1988 Oct; Monticello, IL (1988) (*Published*)
148. Snyder DL, Miller MI, Schultz TJ. "Constrained Probability-Density Estimation from Noisy Data". 22nd Annual Conference on Information Sciences and System, 1988 Mar; Princeton, NJ (1988):170-172 (*Published*)
149. Miller MI, Roysam B, Smith KR. "Mapping Rule-based and Stochastic Constraints to Connection Architectures: Implications for Hierarchical Image Processing". Visual Communications and Image

Processing, 1988 Nov. Proceedings of the SPIE International Society of Optical Eng., Edited by T.R. Hsing 1001 (1988):1078-1085 (*Published*)

150. Miller MI, Snyder DL. "The Role of Likelihood and Entropy in Incomplete-Data Problems: Applications to Estimating Point-Process Intensities and Toeplitz Constrained Covariances". Proceedings of the IEEE 75. 7 (1987):892-907 (*Published*)

151. Miller MI, Fuhrmann DR. "An EM Algorithm for Direction-of-Arrival Estimation for Narrowband Signals in Noise". Advanced Algorithms and Architectures for Singal Processing II, 1987 Aug; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by F.T. Luk 826 (1987):101-103 (*Published*)

152. Snyder DL, O'Sullivan JA, Miller MI. "An Estimation Theoretic Approach for Imaginary Diffuse Radar-Targets". Advanced Algorithms and Architectures for Singal Processing II, 1987 Aug; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by F.T. Luk 826 (1987):141-142 (*Published*)

153. Barrett RC, McCarthy AW, Miller MI, Morley RE. "Gaussian Convolutions on a Massively Parallel Processor". 21st Annual Conference on Information Sciences and System, 1987 Mar; Baltimore, MD, Edited by W.J. Rugh, and B.L. Hughes (1987):373-374 (*Published*)

154. Miller MI, Fuhrmann DR. "Maximum-Likelihood Direction of Arrival Estimations for Multiple Narrowband Signals in Noise". 21st Annual Conference on Information Sciences and System, 1987 Mar; Baltimore, MD, Edited by W.J. Rugh, and B.L. Hughes (1987):710-712 (*Published*)

155. Turmon MJ, Miller MI. "Performance Evaluation of Maximum-Likelihood Estimation of Toeplitz Covariances Generated with the Expectation Maximization Algorithm". 21st Annual Conference on Information Sciences and System, 1987 Mar; Baltimore, MD, Edited by W.J. Rugh, and B.L. Hughes (1987):548 (*Published*)

156. Fuhrmann DR, Miller MI. "On the Existence of Positive Definite Maximum-Likelihood Estimates of Structured Covariance Matrices". 21st Annual Conference on Information Sciences and System, 1987 Mar; Baltimore, MD, Edited by W.J. Rugh, and B.L. Hughes (1987):549-552 (*Published*)

157. Snyder DL, Miller MI. "The use of Grenander's Sieves in Quantum-Limited Imaging". 24th Annual Allerton Conference on Communication, Control and Computing, 1986 Oct; Monticello, IL (1986):213 (*Published*)

158. Miller MI, Snyder DL. "The Application of Maximum Entropy and Maximum-Likelihood for Spectral Estimation ". Proceedings of the IEEE International Symposium on Information Theory, 1986 Oct; Ann Arbor, MI (1986):53 (*Published*)

159. Miller MI, Snyder DL, Turmon MJ. "Iterative Maximum-Likelihood estimation of Toeplitz-Constrained Covariances". 24th Annual Allerton Conference on Communication, Control and Computing, 1986 Oct; Monticello, IL (1986):111-112 (*Published*)

160. Miller MI, Snyder DL. "An Alternating Maximization of the Entropy/Likelihood Function for Image Reconstruction and Spectrum Estimation". Advanced Algorithms and Architectures for Signal Processing, 1986 Aug; San Diego, CA. Proceedings of the SPIE International Society of Optical Eng., Edited by J.M. Speiser 696 (1986):163-166 (*Published*)

161. Miller MI. "Strategies for the Representation of Broadband Stimuli in the Discharge Patters of Auditory Nerve Fibers". NATO Advanced Research Workshop on Auditory Frequency Selectivity, 1986 Jun. (1986):265-272 (*Published*)

162. Snyder DL, Miller MI. "Estimation under Quantum-Limited Conditions". Quantum Limited Imaging and Image Processing Topical Meeting, 1986 Mar; Honolulu, HI (1986):120-123 (*Published*)

163. Bergeron LE, Goldberg AJ, Kwon SY, Miller MI. "A Robust Adaptive Transform Coder for 9.6 Kb/s Speech Transmission". 1980 International Conference on Acoustics, Speech and Signal Processing, 1980 Apr; Denver, CO (1980):344-347 (*Published*)

## Publications: Patents

1. Susumu Mori, Michael I. Miller, Kenichi Oishi, Jiangyang Zhang. "Automate Image Analyses for Magnetic Resonance Imaging". US Patent No. 8,731,256.
2. Michael I. Miller, Can Ceritoglu, Susumu Mori, Anqi Qiu, Jiangyang Zhang "Advance Cost Functions for Image Analysis: Multi-channel, Hypertemplate and Atlases with Built-in Anatomical Variability". US Patent No. 8,600,131
3. Susumu Mori, Michael I. Miller. "Automated Characterization of Time-dependent Tissue Change" US Patent No. 8,594,401
4. Susumu Mori, Andreia V. Farai, Michael I. Miller, Kenichi Oishi. "Atlas-based Analysis for Image-based Anatomic and Functional Data of Organisms". US Patent No. 8,838,201
5. Michael I. Miller. "Viewpoint-Invariant Detection and ID of 3D object from 2D Imagery". US Patent No. 7,853,085 B2. Issued December 14, 2010.
6. Michael I. Miller. "Generation of Image Database for Multifeatured Objects". US Patent No. 7,643,683 B2 January 5, 2010.
7. Michael I. Miller. "Viewpoint-Invariant Image Matching and Generation of 3D Models from 2D Imagery". US Patent No. 7,643,685 B2. Issued January 5, 2010.
8. Susumu Mori, Michael I. Miller, Anqi Qiu, Can Ceritoglu, Jiangyan Zhang. "Description of Invention: Advanced Cost Functions for Image Registration for Automated Image Analysis: Multi-Channel, Hypertemplate and Atlases With Built-In Anatomical Variability". (2008) (US patent, pending) (*Submitted*)
9. Susumu Mori, Michael I. Miller, Anqi Qiu. "Automated Surface-based Anatomical Analysis Based on Atlas-Based Segmentation of Medical Imaging". (2008) (US patent, pending) (*Submitted*)
10. Rapid Convolution based large Deformation Image Matching Via Landmark and Volume Imagery. Granted June 18, 2002.
11. Method and Apparatus for Processing Images with Curves. Inventors Bakircioglu M, Khaneja N, Miller MI. Filed January 27, 2000.
12. Method and Apparatus for Cross-Modality Image Registration. Inventor Miller MI. Filed December 11, 2000.
13. Method and Apparatus for Image Registration Using Large Deformation Diffeomorphisms on a Sphere. Inventors Bakircioglu M, Joshi S, Miller MI. Filed December 27, 2000.
14. Method and Apparatus for Image Registration. Inventors Miller MI, Christensen GE, Joshi SC, Grenander U. US Patent No. 6,009,212. Filed July 6, 1996. Issued December 28, 1999.



## Supervised Students

1. Kegang Hua  
Ph.D. Awarded 2014  
Thesis title: Human Brain White Matter Analysis Using Tractography -- An Atlas-Based Approach  
Electrical and Computer Engineering
2. Jianqiao Feng  
Ph.D. Awarded 2014  
Thesis title: Fusion and Inference of Geometric Information and Functional Contrast in Computational Anatomy  
Computer Science
3. Yajing Zhang  
Ph.D. Awarded 2014  
Biomedical Engineering
4. Xiaoying Tang  
Ph.D. Awarded 2014  
Thesis title: Brain Segmentation via Diffeomorphic Likelihood Fusion and It's Applications to Clinical Analyses  
Electrical and Computer Engineering
5. Aastha Jain  
Ph.D. Awarded, 2011  
Thesis title: Partical Methods for Diffeomorphic Registration  
Applied Mathematics and Statistics
6. Manisha Aggarwal  
Ph.D. Awarded, 2011  
Thesis title: Longitudinal Characterization of Brain Atrophy in Mouse Models of Huntginton's Disease using in vivo Magnetic Resonance Imaging  
Biomedical Engineering
7. Jun Ma  
Ph.D. Awarded, 2011  
Thesis title: Statistics on Computational Anatomy: From Template Estimation to Geodesically Controlled Diffeomorphic Active Shapes  
Biomedical Engineering
8. Felipe Arrate  
Ph.D. Awarded, 2010  
Thesis title: Evolution Equations on the Group of Diffeomorphisms, with Applications in Computational Anatomy  
Applied Mathematics and Statistics
9. Nayoung Lee  
Ph.D. Awarded, 2010  
Thesis title: Characterization of Brain Development in Children Using Diffusion Tensor Imaging  
Biomedical Engineering
10. Can Ceritoglu  
Ph.D. Awarded Spring 2008  
Thesis title: Multichannel Large Deformation Diffeomorphic Metric Mapping and Registration of Diffusion Tensor Images  
Electrical and Computer Engineering
11. Marc Vaillant  
Ph.D. Awarded, Spring 2007  
Thesis title: Surface Matching via Currents and Tangent Space Representations for Statistics on Diffeomorphisms  
Biomedical Engineering
12. Sachin Gangaputra  
Ph.D. Awarded 2006  
Electrical and Computer Engineering

13. Anqi Qiu  
Ph.D. Awarded, 2006  
Thesis Title: Intrinsic and Extrinsic Analysis in Computational Anatomy  
Electrical and Computer Engineering
14. Dmitri Bitouk  
Ph.D. Awarded Summer 2006  
Thesis title: Head-Pose and Illumination Invariant 3-D Audio-Visual Speech Recognition  
Electrical and Computer Engineering
15. Hao Huang  
Ph.D. Awarded, 2005  
Electrical and Computer Engineering
16. Jiangyang Zhang  
Ph.D. Awarded, Spring 2004  
Biomedical Engineering
17. Agatha Lee  
Ph.D. Awarded 2003  
Biomedical Engineering
18. Faisal Beg  
Ph.D. Awarded, Summer 2003  
Thesis Title: "Variational and Computational Methods for Flows of Diffeomorphisms in Image Matching and Growth in Computational Anatomy"  
Biomedical Engineering
19. Rakesh Lal  
M.S. Awarded, July 2001  
Thesis Title: "Tracking in Diffusion Tensor Imaging"  
Biomedical Engineering
20. Cash Costello  
M.S. Awarded, August 2000  
Thesis Title: "Medical Image Registration using the Hilbert-Schmidt Estimator"  
Biomedical Engineering
21. Matthew Cooper  
Ph.D. Awarded, July 1999  
Thesis Title: "Information Measures for Object Recognition Accommodating Signature Variability"  
Electrical and Computer Engineering
22. Joseph Kostakis  
M.S. Awarded, July 1999  
Thesis Title: "Multi-Sensor Active-Passive Performance Characterization"  
Electrical and Computer Engineering
23. Muge Bakircioglu  
M.S. Awarded, July 1999  
Thesis Title: "Large Deformation Diffeomorphisms for Mapping Spherical Brain Manifolds"
24. Aaron Lanterman  
Ph.D. Awarded, August 1998; M.S. Awarded, May 1995  
M.S. Thesis Title: "Jump-Diffusion Algorithms for the Automated Understanding of Forward-Looking Infrared Scenes" Ph.D. Thesis Title: "Minimum Description Length Estimation for ATR"
25. Sarang Joshi  
Ph.D. Awarded, August 1997; M.S. Awarded, January 1993;  
M.S. Thesis Title: "MAP Intensity Estimation with Good's Roughness and Global Shape Models for 3-D Optical Sectioning Microscopy" Ph.D. Thesis Title: "Large Deformation Diffeomorphisms and Gaussian Random Fields for the Statistical Characterization of Brain Submanifolds"  
Electrical Engineering

26. Kevin Mark  
Ph.D. Awarded, May 1997  
Thesis Title: "Markov Random Field Models for Natural Language"  
Electrical Engineering
27. Anuj Srivastava  
M.S. Awarded, December 1994; Ph.D. Awarded, July 1996  
M.S. Thesis Title: "Automated Target Tracking and Recognition Using Jump-Diffusion Processes"  
Ph.D. Thesis Title: "Inferences on Transformation Groups Generating Patterns on Rigid Motions"  
Electrical Engineering
28. Robert Schmich  
M.S. Awarded, May 1996  
Thesis Title: "Stochastic Models of Synaptic Recovery and Post-Synaptic Action Potential Generation via Active Channel Dynamics"
29. Navin Khaneja  
M.S. Awarded, December 1996  
Thesis Title: "Statistics and Geometry of Cortical Features"
30. Ayananshu Banerjee  
M.S. Awarded, June 1996  
Thesis Title: "High-Dimensional Anatomical Maps and their Applications in Empirical Estimation, Functional Imaging and -> Neuromorphometry"
31. Robert Teichman  
M.S. Awarded, December 1994  
Thesis Title: "Automated Target Recognition in a Distributed Computing Environment"
32. Gary Christensen  
Ph.D. Awarded, August 1994  
"Deformable Shape Models for Anatomy"  
Electrical Engineering
33. Jing Wang  
M.S. Awarded, May 1993  
Thesis Title: "A Markov Process Model for Vesicle Release-Recycle and Action Potential Generation"  
Electrical Engineering
34. Christopher Butler  
M.S. Awarded, January 1993  
Thesis Title: "3-D Maximum A-Posteriori Estimation on Massively Parallel Computers for Single Photon Emission Tomography with Multigrid Initialization"  
Electrical Engineering
35. Timothy Schaewe  
Ph.D. Awarded, September 1991  
Thesis Title: "Maximum Likelihood Estimation for Magnetic Resonance Image Reconstruction"  
Electrical Engineering
36. Anders McCarthy  
M.S. Awarded, August 1990  
Thesis Title: "Medical Imaging on Mesh-Connected Parallel Computers"  
Electrical Engineering
37. Michael Turmon  
M.S. Awarded, August 1990  
Thesis Title: "Maximum-Likelihood Estimation of Constrained Means and Toeplitz Covariances with Application to Direction Finding"  
Electrical Engineering
38. Chrysanthe Preza  
M.S. Awarded, August 1990

Thesis Title: "A Regularized Linear Reconstruction Method for Optical-Sectioning Microscopy"  
Electrical Engineering

39. Kurt Smith  
Ph.D. Awarded, December 1990  
Thesis Title: "A Bayesian Approach Incorporating Stochastic Complexity for Learning Regular Grammar Models and Image Models: Application to Segmenting Biomedical Images"  
Electrical Engineering
40. Tim S. Chen  
M.S. Awarded, August 1990  
Thesis Title: "Maximum-Likelihood Methods for 1- and 2-D Nuclear Magnetic Resonance Spectroscopy" Electrical Engineering
41. Badrinath Roysam  
Ph.D. Awarded, August 1989  
Thesis Title: "Joint Stochastic and Symbolic Inference: Application to Hierarchical Imaging via Massively Parallel Architectures" Ph.D. Awarded, August 1989  
Electrical Engineering
42. David Maffitt  
M.S. Awarded, December 1989  
Thesis Title: "Applications of the Maximum-Likelihood Method for Electron-Microscopic Autoradiography with Real Data  
Electrical Engineering
43. Neophytos Karamanos  
M.S. Awarded, December 1987  
Thesis Title: "A New Method for Analyzing Auditory-Nerve Discharge Patterns"  
Electrical Engineering

## Courses Taught at Johns Hopkins University

Spring 2016

580.222 Systems and Controls

Undergraduate Students: 120

Fall 2015

580.431 Introduction to Computational Medicine

Undergraduate Students: 30

Spring 2014

580.222 Systems and Controls

Undergraduate Students: 125

Spring 2013

580.222 Systems and Controls

Undergraduate Students: 140

Spring 2012

580.222 Systems and Controls

Undergraduate Students: 115

Spring 2011

580.222 Systems and Controls

Undergraduate Students: 105

Spring 2010

580.222 Systems and Controls

Undergraduate Students: 105

Spring 2009

580.222 Systems and Controls

Undergraduate Students: 110

Spring 2008

580.222 Systems and Controls

Undergraduate Students: 100

Spring 2007

580.222 Systems and Controls

Undergraduate Students: 100

Spring 2006

580.222 Systems and Controls

Undergraduate Students: 88

Spring 2005

580.222 Signals and Systems

Undergraduate Students: 101

Fall 2004

580.222 Signals and Systems

Undergraduate Students: 137

Spring 2003

520.644 Pattern Theory

Graduate Students: 3

Spring 2003

580.222 Signals and Systems

Undergraduate Students: 150

## Grants (partial list at JHU)

### Active

**ID:** 108018**Grant:** Neuroimaging In Early Onset Depression: Longitudi**Project Start/End:** 05/01/2010-02/28/2011

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 29,518.00**Total Received in Grant:** 29,518.00

**Sponsored Program ID :** 90041883

**Sponsored Program (Subaccount):** Neuroimaging In Early Onset De

**Cumulative Budget as of 12/31/10:** 29,518.00**2010 Expenditures:** 19,526.14**Cumulative Balance as of 12/31/10:** 9,991.86

**ID:** 106762**Grant:** Resource For Quantitative Functional Mri**Project Start/End:** 08/28/2009-08/27/2011

**Sponsor:** Kennedy Krieger Inst

**PI:** Michael Miller

**Total Authorized Grant Amount:** 429,108.00**Total Received in Grant:** 429,108.00

**Sponsored Program ID :** 90039457

**Sponsored Program (Subaccount):** 3p41rr01542108s2

**Cumulative Budget as of 12/31/10:** 429,108.00**2010 Expenditures:** 275,609.33**Cumulative Balance as of 12/31/10:** 135,930.96

**ID:** 107206**Grant:** Neurology Of Deficient Response Control In Adhd**Project Start/End:** 08/15/2009-06/30/2014

**Sponsor:** Kennedy Krieger Inst

**PI:** Michael Miller

**Total Authorized Grant Amount:** 391,808.00**Total Received in Grant:** 73,800.00

**Sponsored Program ID :** 90040298

**Sponsored Program (Subaccount):** Neurology Of Deficient Respons

**Cumulative Budget as of 12/31/10:** 73,800.00**2010 Expenditures:** 79,999.47**Cumulative Balance as of 12/31/10:** -6,199.47

**ID:** 106163**Grant:** Dtistudio: Resource Software For Dirffusion Tensor**Project Start/End:** 08/01/2009-07/31/2011

**Sponsor:** Natl Inst Of Neurological Disorders

**PI:** Susumu Mori **Co-I:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90041599

**Sponsored Program (Subaccount):** Dtistudio: Res Sw Allocation

**Cumulative Budget as of 12/31/10:** 165,804.00**2010 Expenditures:** 102,159.81**Cumulative Balance as of 12/31/10:** 63,644.19

**ID:** 106181**Grant:** Mr Microimaging Of Mouse Brain Development**Project Start/End:** 08/01/2009-07/31/2013

**Sponsor:** Natl Inst Of Biomedical Imaging And

**PI:** Susumu Mori **Co-I:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90041592

**Sponsored Program (Subaccount):** R01eb003543 Allocation

**Cumulative Budget as of 12/31/10:** 87,788.00**2010 Expenditures:** 51,413.69**Cumulative Balance as of 12/31/10:** 36,374.31

**ID:** 105877**Grant:** Biomarkers Of Cognitive Decline Among Normal Indiv**Project Start/End:** 07/01/2009-05/31/2014

**Sponsor:** Natl Inst On Aging

**PI:** Marilyn Albert **Co-I:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90038319

**Sponsored Program (Subaccount):** Biocard Imaging Core C

**Cumulative Budget as of 12/31/10:** 707,733.00**2010 Expenditures:** 363,051.51**Cumulative Balance as of 12/31/10:** 210,227.78

**ID:** 107123**Grant:** Schizophrenia Data And Software Tool Federation Us**Project Start/End:** 07/01/2009-06/30/2011

**Active**

**Sponsor:** Northwestern Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 235,527.00**Total Received in Grant:** 235,527.00

**Sponsored Program ID :** 90040195

**Sponsored Program (Subaccount):** 60024415 Jhu Cis

**Cumulative Budget as of 12/31/10:** 235,527.00**2010 Expenditures:** 98,144.65**Cumulative Balance as of 12/31/10:** 137,382.35

**ID:** 105790**Grant:** Validation Of Structural/Functional Mri Localizati**Project Start/End:** 07/01/2009-06/30/2013

**Sponsor:** Natl Inst Of Biomedical Imaging And

**PI:** Michael Miller

**Total Authorized Grant Amount:** 1,441,360.00**Total Received in Grant:** 717,406.00

**Sponsored Program ID :** 90037950

**Sponsored Program (Subaccount):** Validation Of Structural/Funct

**Cumulative Budget as of 12/31/10:** 499,545.00**2010 Expenditures:** 217,225.24**Cumulative Balance as of 12/31/10:** 236,259.74

**ID:** 105433**Grant:** Longitudinal And Cross-Sectional Quantitative Whit**Project Start/End:** 06/01/2009-05/31/2011

**Sponsor:** Natl Inst On Aging

**PI:** Kenichi Oishi **Co-I:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90041433

**Sponsored Program (Subaccount):** Longitudinal And Cs For Az

**Cumulative Budget as of 12/31/10:** 64,997.00**2010 Expenditures:** 48,133.88**Cumulative Balance as of 12/31/10:** 16,863.12

**ID:** 106490**Grant:** 3d Sape Analysis For Computational Anatomy**Project Start/End:** 05/01/2009-07/31/2011

**Sponsor:** Natl Inst Of Biomedical Imaging And

**PI:** Michael Miller

**Total Authorized Grant Amount:** 148,984.00**Total Received in Grant:** 148,984.00

**Sponsored Program ID :** 90039145

**Sponsored Program (Subaccount):** 3d Shape Analysis For Computat

**Cumulative Budget as of 12/31/10:** 148,984.00**2010 Expenditures:** 63,515.10**Cumulative Balance as of 12/31/10:** 64,804.90

**ID:** 105344**Grant:** 3d Shape Analysis For Computation Anatomy**Project Start/End:** 05/01/2009-02/28/2013

**Sponsor:** Natl Inst Of Health

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 96004944

**Sponsored Program (Subaccount):** Kitware, Inc.

**Cumulative Budget as of 12/31/10:** 166,667.00**2010 Expenditures:** 119,074.52**Cumulative Balance as of 12/31/10:** 5,759.12

**ID:** 105344**Grant:** 3d Shape Analysis For Computation Anatomy**Project Start/End:** 05/01/2009-02/28/2013

**Sponsor:** Natl Inst Of Health

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 96004943

**Sponsored Program (Subaccount):** Washinton U St. Louis

**Cumulative Budget as of 12/31/10:** 167,424.00**2010 Expenditures:** 157,264.04**Cumulative Balance as of 12/31/10:** 4,560.95

**ID:** 105344**Grant:** 3d Shape Analysis For Computation Anatomy**Project Start/End:** 05/01/2009-02/28/2013

**Sponsor:** Natl Inst Of Health

**Active**

**PI:** Michael Miller

**Total Authorized Grant Amount:** 1,894,723.00**Total Received in Grant:** 943,849.00

**Sponsored Program ID :** 90037288

**Sponsored Program (Subaccount):** 3d Shape Analysis For Computat

**Cumulative Budget as of 12/31/10:** 609,758.00**2010 Expenditures:** 236,349.21**Cumulative Balance as of 12/31/10:** 213,815.87

**ID:** 105652**Grant:** Multi-Scale Model Of The Human Heart For Imaging R**Project Start/End:** 04/01/2009-01/31/2011

**Sponsor:** Duke Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 259,854.00**Total Received in Grant:** 259,854.00

**Sponsored Program ID :** 90037740

**Sponsored Program (Subaccount):** Multi-Scale Model Of The Human

**Cumulative Budget as of 12/31/10:** 259,854.00**2010 Expenditures:** 64,299.13**Cumulative Balance as of 12/31/10:** 128,923.11

**ID:** 105345**Grant:** Novel Cortical Analysis In Twin Discordant For Adh**Project Start/End:** 01/01/2009-11/30/2010

**Sponsor:** Washington University St. Louis

**PI:** Michael Miller

**Total Authorized Grant Amount:** 172,200.00**Total Received in Grant:** 172,200.00

**Sponsored Program ID :** 90037328

**Sponsored Program (Subaccount):** Novel Cortical Analysis In Twi

**Cumulative Budget as of 12/31/10:** 172,200.00**2010 Expenditures:** 39,817.90**Cumulative Balance as of 12/31/10:** 92,301.76

**ID:** 103146**Grant:** Do Not Use - Use 103357**Project Start/End:** 03/02/2008-06/30/2012

**Sponsor:** Northwestern Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.01

**Sponsored Program ID :** 90033551

**Sponsored Program (Subaccount):** Neuromorphometry In Schizophre

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 103352**Grant:** Degeneration And Treatment Of Dementia**Project Start/End:** 03/01/2008-11/30/2009

**Sponsor:** Northwestern Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 86,865.00**Total Received in Grant:** 86,865.00

**Sponsored Program ID :** 90033973

**Sponsored Program (Subaccount):** Degeneration & Treatment Of De

**Cumulative Budget as of 12/31/10:** 86,865.00**2010 Expenditures:** 1,639.99**Cumulative Balance as of 12/31/10:** -802.98

**ID:** 103357**Grant:** Neuromorphometry In Schizophrenia By Computer Algo**Project Start/End:** 03/01/2008-06/30/2012

**Sponsor:** Northwestern Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 238,721.00**Total Received in Grant:** 238,721.00

**Sponsored Program ID :** 90033974

**Sponsored Program (Subaccount):** Neuromorphometry In Schizophre

**Cumulative Budget as of 12/31/10:** 238,721.00**2010 Expenditures:** 48,910.13**Cumulative Balance as of 12/31/10:** 84,954.59

**ID:** 101570**Grant:** Human White Matter Tract Mapping By Diffusion Mri**Project Start/End:** 09/01/2007-06/30/2012

**Sponsor:** Natl Inst On Aging

**PI:** Susumu Mori **Co-I:** Michael Miller



**Active**

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90036475

**Sponsored Program (Subaccount):** Human White Matter Tract Mappi

**Cumulative Budget as of 12/31/10:** 154,475.00**2010 Expenditures:** 70,789.45**Cumulative Balance as of 12/31/10:** -22,937.63

**ID:** 101363**Grant:** Resource Trd4 Year 2**Project Start/End:** 09/01/2007-08/31/2011

**Sponsor:** Kennedy Krieger Inst

**PI:** Michael Miller

**Total Authorized Grant Amount:** 919,269.00**Total Received in Grant:** 919,269.00

**Sponsored Program ID :** 90030666

**Sponsored Program (Subaccount):** Resource Trd4 Year 2

**Cumulative Budget as of 12/31/10:** 919,269.00**2010 Expenditures:** 215,533.00**Cumulative Balance as of 12/31/10:** 185,923.69

**ID:** 101744**Grant:** Neuromorphometry In Schizophrenia By Computer Algo**Project Start/End:** 08/31/2007-02/28/2008

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 46,185.00**Total Received in Grant:** 46,185.00

**Sponsored Program ID :** 90031259

**Sponsored Program (Subaccount):** Neuromorphometry In Schizophre

**Cumulative Budget as of 12/31/10:** 46,185.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 1,599.29

**ID:** 101293**Grant:** Conte Center: Mapping Abnormal Neurodevelopment In**Project Start/End:** 08/01/2007-07/31/2008

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 411,324.00**Total Received in Grant:** 411,324.00

**Sponsored Program ID :** 90030939

**Sponsored Program (Subaccount):** Conte Center: Mapping Abnorma

**Cumulative Budget as of 12/31/10:** 411,324.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 5,320.41

**ID:** 101293**Grant:** Conte Center: Mapping Abnormal Neurodevelopment In**Project Start/End:** 08/01/2007-07/31/2008

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90030584

**Sponsored Program (Subaccount):** Conte Center: Mapping Abnorma

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** -1,344.34**Cumulative Balance as of 12/31/10:** -15.21

**ID:** 100642**Grant:** Mbirn (Morphometry Biomedical Informatics Research**Project Start/End:** 06/01/2007-05/31/2010

**Sponsor:** Mass General Hospital

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90031086

**Sponsored Program (Subaccount):** Void. Use Io 90031045 Instead.

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 100642**Grant:** Mbirn (Morphometry Biomedical Informatics Research**Project Start/End:** 06/01/2007-05/31/2010

**Sponsor:** Mass General Hospital

**PI:** Michael Miller

**Active**

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90029545

**Sponsored Program (Subaccount):** Void. Use Io 90031045 Instead.

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 100642**Grant:** Mbirn (Morphometry Biomedical Informatics Research**Project Start/End:** 06/01/2007-05/31/2010

**Sponsor:** Mass General Hospital

**PI:** Michael Miller

**Total Authorized Grant Amount:** 998,529.00**Total Received in Grant:** 998,529.00

**Sponsored Program ID :** 90031045

**Sponsored Program (Subaccount):** Mbirn

**Cumulative Budget as of 12/31/10:** 998,529.00**2010 Expenditures:** 69,965.07**Cumulative Balance as of 12/31/10:** 161.80

**ID:** 101468**Grant:** Simulation Tools For Dynamic Ct**Project Start/End:** 03/01/2007-08/31/2009

**Sponsor:** Duke Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90030781

**Sponsored Program (Subaccount):** Void. Use Io 90031004 Instead.

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** -1,564.56**Cumulative Balance as of 12/31/10:** -17.72

**ID:** 101468**Grant:** Simulation Tools For Dynamic Ct**Project Start/End:** 03/01/2007-08/31/2009

**Sponsor:** Duke Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 133,195.00**Total Received in Grant:** 133,195.00

**Sponsored Program ID :** 90031004

**Sponsored Program (Subaccount):** Simulation Tools For Dynamic C

**Cumulative Budget as of 12/31/10:** 133,195.00**2010 Expenditures:** 1,135.43**Cumulative Balance as of 12/31/10:** 3,097.47

**ID:** 906834**Grant:** The Cardiovascular Research Grid**Project Start/End:** 03/01/2007-12/31/2011

**Sponsor:** Natl Inst Of Health

**PI:** Raimond Winslow **Co-I:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90029050

**Sponsored Program (Subaccount):** Cvrg Project 4

**Cumulative Budget as of 12/31/10:** 816,791.00**2010 Expenditures:** 199,247.85**Cumulative Balance as of 12/31/10:** 548.84

**ID:** 906081**Grant:** Resource For Quantitative Functional Mri: Tdr4**Project Start/End:** 09/01/2006-08/31/2007

**Sponsor:** Kennedy Krieger Inst

**PI:** Michael Miller

**Total Authorized Grant Amount:** 227,869.00**Total Received in Grant:** 227,869.00

**Sponsored Program ID :** 90026892

**Sponsored Program (Subaccount):** The Resource For Quantitative

**Cumulative Budget as of 12/31/10:** 227,869.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 905547**Grant:** Conte Center: Mapping Abnormal Neurodevelopment I**Project Start/End:** 08/01/2006-07/31/2007

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 425,310.00**Total Received in Grant:** 425,310.00

**Active**

**Sponsored Program ID :** 90025355

**Sponsored Program (Subaccount):** Conte Center: Mapping Abnorma

**Cumulative Budget as of 12/31/10:** 425,310.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 9,256.41

**ID:** 905205**Grant:** Conte Center/Mapping Abnormal Neurodevelopment In**Project Start/End:** 08/01/2005-07/31/2006

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 430,480.00**Total Received in Grant:** 430,480.00

**Sponsored Program ID :** 90023586

**Sponsored Program (Subaccount):** Conte Center/Mapping Abnormal

**Cumulative Budget as of 12/31/10:** 430,480.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** -3,713.06

**ID:** 905204**Grant:** Corticolimbic Degeneration And Treatment Of Dement**Project Start/End:** 05/25/2005-02/28/2008

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 171,368.00**Total Received in Grant:** 168,636.34

**Sponsored Program ID :** 90023585

**Sponsored Program (Subaccount):** Washington University

**Cumulative Budget as of 12/31/10:** 168,636.34**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** -1,440.80

**Pending**

**Grant:** THE RECOURCE FOR QUANTITATIVE FUNCTGIONAL MRI: TRD4**Project Start/End:** 09/01/2011-08/31/2016

**Sponsor:** KENNEDY KRIEGER INST ATTN: FINANCE DEPARTMENT**Total Received in Grant:**

**Grant:** CONTINUED DEVELOPMENT OF THE XCAT SOFTWARE FOR MULTIMODALITY**Project Start/End:** 04/01/2011-03/31/2015

**Sponsor:** DUKE UNIV**Total Received in Grant:**

**Grant:** ABNORMAL NEURAL DEVELOPMENT IN SCHIZOPHRENIA (ANDIS)**Project Start/End:** 07/01/2010-06/30/2015

**Sponsor:** NORTHWESTERN UNIV**Total Received in Grant:**

**Terminated**

**ID:** 103553**Grant:** Do Not Use**Project Start/End:** 09/01/2008-08/31/2009

**Sponsor:** Kennedy Krieger Inst

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.01

**Sponsored Program ID :** 90034258

**Sponsored Program (Subaccount):** Do Not Use

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 103526**Grant:** Do Not Use: Please Use Grant 104567**Project Start/End:** 08/01/2008-07/31/2009

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.01

**Sponsored Program ID :** 90034249

**Sponsored Program (Subaccount):** Voided. Please Use 90035936

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 103332**Grant:** Morphometry Biomedical Informatics Research Networ**Project Start/End:** 06/01/2008-05/31/2009

**Sponsor:** Mass General Hospital

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.01

**Sponsored Program ID :** 90033947

**Sponsored Program (Subaccount):** Mbirn-Year 5

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 905729**Grant:** Conte Center: Mapping Abnormal Neurodevelopment I**Project Start/End:** 08/01/2006-07/31/2007

**Sponsor:** Washington Univ

**Terminated**

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.01

**Sponsored Program ID :** 90026060

**Sponsored Program (Subaccount):** Conte Center: Mapping Abnorma

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 905206**Grant:** Morphometry Biomedical Information**Project Start/End:** 06/01/2006-05/31/2007

**Sponsor:** Mass General Hospital

**PI:** Michael Miller

**Total Authorized Grant Amount:** 489,545.00**Total Received in Grant:** 482,018.36

**Sponsored Program ID :** 90023587

**Sponsored Program (Subaccount):** Morphometry Biomedical Informa

**Cumulative Budget as of 12/31/10:** 482,018.36**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 903123**Grant:** Morphometry Biomedical Informatics Research Networ**Project Start/End:** 09/30/2004-05/31/2006

**Sponsor:** Mass General Hospital

**PI:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 96001120

**Sponsored Program (Subaccount):** Po 2000010326

**Cumulative Budget as of 12/31/10:** 0.00**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 903123**Grant:** Morphometry Biomedical Informatics Research Networ**Project Start/End:** 09/30/2004-05/31/2006

**Sponsor:** Mass General Hospital

**PI:** Michael Miller

**Total Authorized Grant Amount:** 890,863.03**Total Received in Grant:** 890,863.03

**Sponsored Program ID :** 90004273

**Sponsored Program (Subaccount):** Morphometry Biomedical Informa

**Cumulative Budget as of 12/31/10:** 890,863.03**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 907151**Grant:** Mr Microimaging Of Mouse Brain Development**Project Start/End:** 09/30/2004-07/31/2009

**Sponsor:** Natl Inst Of Biomedical Imaging And

**PI:** Susumu Mori **Co-I:** Michael Miller

**Total Authorized Grant Amount:** 0.00**Total Received in Grant:** 0.00

**Sponsored Program ID :** 90023588

**Sponsored Program (Subaccount):** R01eb003543

**Cumulative Budget as of 12/31/10:** 347,104.12**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 903118**Grant:** Conte Center/Mapping Abnormal Neurodevelopment In**Project Start/End:** 09/28/2004-07/31/2005

**Sponsor:** Washington Univ

**PI:** Michael Miller

**Total Authorized Grant Amount:** 430,022.00**Total Received in Grant:** 399,786.28

**Sponsored Program ID :** 90004267

**Sponsored Program (Subaccount):** Conte Center/Mapping Abnormal

**Cumulative Budget as of 12/31/10:** 399,786.28**2010 Expenditures:** 0.00**Cumulative Balance as of 12/31/10:** 0.00

**ID:** 903117**Grant:** Healthy Aging And Senile Dementia: Preclinical Dia**Project Start/End:** 08/15/2004-12/31/2008

**Sponsor:** Washington Univ

**PI:** Michael Miller

<p><b>Terminated</b></p> <p><b>Total Authorized Grant Amount:</b> 273,820.00<b>Total Received in Grant:</b> 267,522.41</p> <p><b>Sponsored Program ID :</b> 90004266</p> <p><b>Sponsored Program (Subaccount):</b> Healthy Aging And Senile Demen</p> <p><b>Cumulative Budget as of 12/31/10:</b> 267,522.41<b>2010 Expenditures:</b> 0.00<b>Cumulative Balance as of 12/31/10:</b> 0.00</p> <p><b>ID:</b> 907385<b>Grant:</b> Anatomical Remodeling And Electrical Conduction In<b>Project Start/End:</b> 09/30/2002-08/31/2007</p> <p><b>Sponsor:</b> Natl Inst Of Health</p> <p><b>PI:</b> Raimond Winslow <b>Co-I:</b> Michael Miller</p>
<p><b>Total Authorized Grant Amount:</b> 0.00<b>Total Received in Grant:</b> 0.00</p> <p><b>Sponsored Program ID :</b> 90007951</p> <p><b>Sponsored Program (Subaccount):</b> Anatomical Remodeling And Elec</p> <p><b>Cumulative Budget as of 12/31/10:</b> 395,939.39<b>2010 Expenditures:</b> 0.00<b>Cumulative Balance as of 12/31/10:</b> 0.00</p> <p><b>ID:</b> 907387<b>Grant:</b> Validation Of Structural/Functional Mri Localizati<b>Project Start/End:</b> 09/23/2002-08/31/2007</p> <p><b>Sponsor:</b> Natl Inst Of Mental Health</p> <p><b>PI:</b> Michael Miller</p>
<p><b>Total Authorized Grant Amount:</b> 1,587,014.00<b>Total Received in Grant:</b> 1,586,838.71</p> <p><b>Sponsored Program ID :</b> 90007969</p> <p><b>Sponsored Program (Subaccount):</b> Validation Of Structural/Funct</p> <p><b>Cumulative Budget as of 12/31/10:</b> 1,204,864.52<b>2010 Expenditures:</b> 0.00<b>Cumulative Balance as of 12/31/10:</b> 0.00</p> <p><b>ID:</b> 903121<b>Grant:</b> Neuromorphometry In Schizophrenia By Computer Algo<b>Project Start/End:</b> 05/01/2002-02/28/2008</p> <p><b>Sponsor:</b> Washington Univ</p> <p><b>PI:</b> Michael Miller</p>
<p><b>Total Authorized Grant Amount:</b> 562,958.00<b>Total Received in Grant:</b> 550,096.43</p> <p><b>Sponsored Program ID :</b> 90004271</p> <p><b>Sponsored Program (Subaccount):</b> Neuromorphometry In Schizophre</p> <p><b>Cumulative Budget as of 12/31/10:</b> 550,096.43<b>2010 Expenditures:</b> 0.00<b>Cumulative Balance as of 12/31/10:</b> 0.00</p> <p><b>ID:</b> 903120<b>Grant:</b> Computational Anatomy<b>Project Start/End:</b> 09/30/2001-08/31/2006</p> <p><b>Sponsor:</b> Kennedy Krieger Inst</p> <p><b>PI:</b> Michael Miller</p>
<p><b>Total Authorized Grant Amount:</b> 1,186,252.68<b>Total Received in Grant:</b> 1,186,252.68</p> <p><b>Sponsored Program ID :</b> 90004270</p> <p><b>Sponsored Program (Subaccount):</b> Computational Anatomy</p> <p><b>Cumulative Budget as of 12/31/10:</b> 1,186,252.68<b>2010 Expenditures:</b> 0.00<b>Cumulative Balance as of 12/31/10:</b> 0.00</p> <p><b>ID:</b> 907146<b>Grant:</b> Human White Matter Tract Maps By Diffusion Mri<b>Project Start/End:</b> 06/01/2001-05/31/2007</p> <p><b>Sponsor:</b> Natl Inst On Aging</p> <p><b>PI:</b> Susumu Mori <b>Co-I:</b> Michael Miller</p>
<p><b>Total Authorized Grant Amount:</b> 0.00<b>Total Received in Grant:</b> 0.00</p> <p><b>Sponsored Program ID :</b> 90006301</p> <p><b>Sponsored Program (Subaccount):</b> Dymanic Programming Methods Fo</p> <p><b>Cumulative Budget as of 12/31/10:</b> 451,201.00<b>2010 Expenditures:</b> 0.00<b>Cumulative Balance as of 12/31/10:</b> -25,551.83</p> <p><b>ID:</b> 903119<b>Grant:</b> Developmental Neuromorphometry In Young Depressed<b>Project Start/End:</b> 02/02/2001-01/31/2007</p> <p><b>Sponsor:</b> Washington Univ</p> <p><b>PI:</b> Michael Miller</p>
<p><b>Total Authorized Grant Amount:</b> 382,259.00<b>Total Received in Grant:</b> 382,259.00</p> <p><b>Sponsored Program ID :</b> 90004269</p> <p><b>Sponsored Program (Subaccount):</b> Developmental Neuromorphometry</p>

Terminated

Cumulative Budget as of 12/31/10: 382,259.002010 Expenditures: 0.00Cumulative Balance as of 12/31/10: 0.00

### Assistant Information

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