Curriculum Vitae

Date Prepared

August 6, 2014

Name

Yogesh Rathi

Education

1992-1997	B.E	Electrical and Electronics Engineering	Birla Institute of Technology and Science, Pilani, India.
1992-1997	M.Sc.	Mathematics	Birla Institute of Technology and Science, Pilani, India. (Dual-Degree Program)
2003-2006	Ph.D.	Electrical and Computer Engineering (ECE) Advisor: Prof. Allen Tannenbaum	Georgia Institute of Technology, Atlanta, GA.

Postdoctoral Training

2006-2007	Research Scientist	Computer Vision Advisor: Allen Tannenbaum	Georgia Institute of Technology.
2007-2008	Research Fellow	Medical Image Analysis Advisor: M. E. Shenton	Brigham and Women's Hospital.

Faculty Academic Appointments

2010-	Assistant Professor, Department of Psychiatry	Harvard Medical School.
2009-	Adjunct Assistant Professor, Department of ECE	Georgia Institute of Technology.
2008-2010	Instructor, Department of of Psychiatry	Harvard Medical School.

Appointments at Hospital/Affiliated Institutions

2007-	Research Associate	Psychiatry Neuroimaging Laboratory, Department of Psychiatry, Brigham and Women's Hospital.
2009-	Research Associate	Laboratory of Neuroscience, Clinical Neuroscience Division, VA Boston Healthcare System, Brockton, MA.

Other Professional Positions

2006-2007	Scientific Research Consultant	MZA Associates
1999-2003	Software Engineer	Teradyne Inc.
1997-1999	Research Engineer	Scientific Systems Inc.

Professional Societies

2005-	Institute of Electrical and Electronics Engineers	Member.
2007-	Medical Image Computing and Computer Assisted Intervention	Member.
2010-	International society of Magnetic Resonance in Medicine	Member.

Grant Review Activities

2008	NSF Career Award	National Science Foundation (NSF) Ad-hoc member
2008	Proposal Evaluation	Army Research Office Ad-hoc member

Editorial Activities

Ad Hoc Reviewer

2005- Medical Image Analysis.
IEEE Transactions on Medical Imaging.
IEEE Transactions on Information Technology in Biomedicine.
IEEE Transactions on Pattern Analysis and Machine Intelligence.
Pattern Recognition Letters
SIAM Journal of Applied Mathematics
International Conference on Medical Image Computing and Computer-Assisted Intervention.
IEEE Conference on Computer Vision and Pattern Recognition.
IEEE Transactions on Image Processing.
IEEE Conference on Decision and Control.

Other Editorial Roles

2008	Program Committee	Workshop on Tensor Processing in Computer Vision held with IEEE Computer Vision and Pattern Recognition Conference.
2012	Program Committee	Workshop on Computational diffusion MRI held with MICCAI.
2012	Session Chair	Chaired a session on Diffusion Weighted Imaging at MICCAI
2013	Session Chair	Chaired several sessions at MICCAI and associated workshops
2014	Workshop Organizer	Organized a workshop on Computational diffusion MRI
2014	SPARC dMRI Challenge Organizer	Organized a challenge for diffusion MRI

Honors and Prizes

1992-1997	BITS Institute Fellowship	Birla Institute of Technology and Science (BITS)
1996	Motorola Best Student Thesis Award	Joint award by Motorola and BITS
2007	O. Hugo Schuck Best Paper Award	American Automatic Control Council.
2009	Winner of Best Tractography algorithm	Fiber Cup Competition held with MICCAI 2009.
2012	NIMH's lists of the "new and notable"	`http://tinyurl.com/97csgev`.
2013	Selected to be in the Harvard Medical School's "Leadership program".	

Report of Funded and Pending Projects

Funding Information

2008-2009 **Principal Investigator** - Partners Information Systems Research Council - (Total Award - $125,000)
Real-time registration of multi-modality images using graphics processor unit (GPU)
PI: Yogesh Rathi

2007-2012 Investigator - NIMH P50MH080272
Vulnerability to progression in Schizophrenia.
Imaging core PI: Martha E. Shenton.

2009-2014 Investigator - VA Merit
White matter analyses in schizophrenia.
PI: Martha E. Shenton.

2009-2014 Investigator - VA Merit
Disease progression in schizophrenia.
PI: Robert McCarley, Core PI: Martha Shenton.

2009-2014 Investigator - NIMH R01 MH 082918
Computational Morphometry in Schizophrenia and Related Disorders.
PI: Sylvain Bouix

2012-2017 Investigator - NIMH R01 MH 074794
Novel DT-MRI analyses of white matter in schizophrenia.
PI: C-F Westin

2013-2018 Investigator - NIH P41 EB015902
Neuroimage Analysis Center (NAC).
Overall PI: Ron Kikinis, Core PI: C-F Westin

2013-2018 Investigator - NIH R01 AG042512
Neural substrates of diffusion imaging in cognitively aging rhesus monkeys
PI: Marek Kubicki And Nikos Makris

2014-2016 Investigator - NIH U01 NS083223
Characterization of white matter in Huntington's disease.
PI: C-F Westin

2012-2017 **Principal Investigator** - NIMH R01 MH097979
Taking advanced diffusion imaging to the clinic for pediatric patients with ADHD
PI: Yogesh Rathi

2014-2015 **Principal Investigator** - INTRuST (DoD) Grant
Harmonizing diffusion MRI data from multiple scanners
PI: Yogesh Rathi

Current Pending Projects

2014- *White matter geometry in Autism*

Report of Local Teaching and Training

Teaching of Students in Courses

Birla Institute of Technology and Science

1997 *Cicuits and Systems*
Undergraduate level, Teaching Assistant, 3hrs per wk for 16 wks

Georgia Institute of Technology

2006-2007 *Problem based learning*
Undergraduate level, Guest Lecturer, 2hrs per wk for 6 wks

2006-2007 *Fundamentals of Computer Vision*
Undergraduate/Graduate level, Guest Lecturer, 1.5hrs per wk for 3 wks

Laboratory and Other Research Supervisory and Training Responsibilities

2006-2007	Supervision and training of graduate students	Daily mentorship of two students
2008-2009	Supervision and training of one research assistant	Weekly mentorship
2008-	Supervision of graduate students	Daily mentorship of one student
2009-	Training of two post-doctoral fellows	Weekly mentorship
2010-	Supervision and training of one software engineer	Weekly mentorship
2010-	Supervision of one graduate student	Daily mentorship

Formally Supervised Students/Fellows

2007-2010	James G Malcolm, Research Fellow. Successfully defended his Ph.D at Georgia Tech in Dec. 2010. Published several peer-reviewed manuscripts.
2006-2007	Gallagher Pryor, Ph.D Student. Graduate Student at Georgia Tech Designed a real-time multi-object tracking system for tracking objects in deep turbulence.
2008-2009	Jalpa Patel, M.S. in Biomedical Engineering. Validation Engineer at Q Pharma, NY. Quantitative analysis of various rigid and non-rigid registration algorithms from Slicer.
2008-2009	Padmapriya Srinivasan, M.S. in Biomedical Engineering. Research Assistant at Brigham and Women's Hospital, Designed a software module for group registration of labeled images.
2009-2010	Hsiao Piau Ng, Post-doctoral reseacher Post-doctoral researcher at Brigham and Women's Hospital. Use multi-tensor tractography for locating abnormal fiber bundles in schizophrenia.
2009-	Takeshi Asami, Post-doctoral researcher Post-doctoral researcher at Brigham and Women's Hospital. Use histogram analysis and two-tensor tractography for fiber tract analysis.
2010-	Po-Chang Hsu, Graduate Student Master's student at Harvard University. Utilizing tractography methods for analyzing thalamic connections in the brain.
2010-	Ryan Eckbo, Software Engineer Brigham and Women's Hospital, PNL. Provide supervision and training in all aspects of software engineering at the PNL.
2010-2011	Stefan Leinhard, Graduate Student Master's student at ETH, Zurich. False positive detection for filtered two/three tensor tractography.
2011-2012	Christian Baumgartner, Graduate Student Master's student at ETH, Zurich. Unscented Kalman filter based estimation of free water in diffusion MRI.
2011-	Peter Savadjiev, Instructor Brigham and Women's Hospital, PNL. Mentor on several scientific projects.
2013-	Lipeng Ning, Post-doctoral fellow Brigham and Women's Hospital, PNL. Advisor and Mentor.

Local Invited Presentations

2006 *A filtering approach to tracking highly deforming objects*
Air-force office of scientific research (AFOSR),
Dept. of Mechanical Engineering, Georgia Institute of Technology.

2007 *Affine registration of richly labeled images*
Laboratory of Mathematics in Imaging (LMI)- BWH

2008 *Directional functions for fiber-orientation distribution estimation*
Laboratory of Mathematics in Imaging (LMI) - BWH

2009 *Neural Tractography using a Filtering Approach*
Golby Lab, Dept. of Neurosurgery - BWH

2009 *Multi-tensor tractography and its applications*
Laboratory of Mathematics in Imaging (LMI) - BWH

2010 *A unified framework for multi-fiber tractography using the unscented Kalman Filter*
CSAIL - MIT (Massachusetts Institute of Technology)

2010 *Multi-fiber tractography and statistical analysis of first-episode schizophrenia patients*
Genetics and Schizophrenia Seminar - BWH

2011 *Compressed Sensing for diffusion MRI*
Martinos Center for Biomedical Imaging - MGH

2013 *Fast diffusion imaging using compressed sensing and model based techniques*
Fetal-Neonatal Neuroimaging and Development Science Center - Children's Hospital Boston

2013 *Thriving in a research hospital*
Career Research Training Program - Judge Baker Children's Center, Boston.

2014 *Career planning in a research hospital*
Career Research Training Program - Judge Baker Children's Center, Boston.

No presentations above were sponsored by outside entities.

Report of National and International Invited Presentations

National Contributions - Invited Talks

2005 *Particle Filtering for Geometric Active Contours with Application to Tracking Moving and Deforming Objects*
IEEE Conference on Computer Vision and Pattern Recognition, San Diego, CA.

2006 *Segmenting Images on the Tensor Manifold*
Harvard Journal Club, Surgical Planning Laboratory - BWH

2008 *Orientation distribution estimation using directional functions*
IEEE Workshop on Tensor computing in computer vision, Anchorage, Alaska.

2008 *Orientation distribution estimation using the Watson directional function*
Minerva Research Group, Georgia Institute of Technology, Atlanta, GA

2008 *Orientation distribution estimation using directional functions in the context of Q-ball imaging*
Mathematical Biosciences Institute, Ohio State University, Columbus, OH.

2013 *Diffusion imaging based markers of abnormal brain tissue*
Quantitative Medical Imaging, Arlington, VA.

International Contributions - Invited Talks

2006 *Comparative Analysis of Kernel Methods for Statistical Shape Learning*
Workshop on Computer Vision Approaches for Medical Image Analysis, Graz, Austria.

2008 *Registration and Segmentation of Medical Images*
GE Research, Bangalore, India.

2008 *Tracking objects in deep turbulence*
IBM Research Laboratories, India.

2012 *A unified framework for comparing diffusion models on clinical scans*
Workshop on Computational diffusion MRI, Nice, France.

Report of Technological and Other Scientific Innovations

As a member of the National Alliance for Medical Image Computing, I have designed and implemented, several modules for 3D slicer (www.slicer.org), a free open source software suite for Medical Image Analysis. I was (and currently am) involved in the development of:

- a module to perform curvature based affine-invariant smoothing of medical images.
- a module to use affine invariant edges to perform segmentation of medical images.
- work is underway to add a variety of brain fiber tracing algorithms to 3D Slicer.

Report of Education of Patients and Service to the Community

Report of Scholarship

Original Articles

Peer-Reviewed Articles published in Journals

1. S. Kumar, **Y. Rathi** and R. C. Jain, "An efficient lapped orthogonal transform image coding technique", *IEEE Transactions on Consumer Electronics*, 43:993–1002, 1997.
2. **Y. Rathi**, N. Vaswani and A. Tannenbaum, "A generic framework for tracking using particle filter with dynamic shape prior", *IEEE Transactions on Image Processing*, 16(5):1370, 2007.
3. T. Georgiou, O. Michailovich, **Y. Rathi**, J. Malcolm and A. Tannenbaum, "Distribution metrics and image segmentation", *Linear algebra and its applications*, 425(2-3):663–672, 2007.
4. **Y. Rathi**, N. Vaswani, A. Tannenbaum and A. Yezzi, "Tracking deforming objects using particle filtering for geometric active contours", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 29(8):1470–1475, 2007.
5. O. Michailovich, **Y. Rathi** and A. Tannenbaum, "Image segmentation using active contours driven by the bhattacharyya gradient flow", *IEEE Transactions on Image Processing*, 16(11):2787–2801, 2007.
6. S. Dambreville, **Y. Rathi** and A. Tannenbaum, "A Framework for Image Segmentation Using Shape Models and Kernel Space Shape Priors", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 30(8):1385–1399, 2008.
7. N. Vaswani, **Y. Rathi**, A. Yezzi and A. Tannenbaum, "Deform PF-MT: Particle Filter with Mode Tracker for Tracking Non-Affine Contour Deformations", *IEEE Transactions on Image Processing*, 2009.
8. **Y. Rathi**, O. Michailovich, M. E. Shenton and S. Bouix, "Directional functions for orientation distribution estimation", *Medical Image Analysis*, 13(3):432–444, 2009.
9. J. Malcolm, O. Michailovich, S. Bouix, C.-F. Westin, M. E. Shenton and **Y. Rathi***, "A filtered approach to neural tractography using the Watson directional function", *Medical Image Analysis*, 14(1):58–69, 2010
10. **Y. Rathi**, J. Malcolm, S. Bouix, A. Tannenbaum and M. E. Shenton, "Affine registration of label maps in label space", *Journal of Computing*, 2(4):1–11, 2010
11. **Y. Rathi**, J. Malcolm, O. Michailovich, C-F Westin, M.E. Shenton and S. Bouix, "Tensor-kernels for simultaneous fiber model estimation and tractography", *Magnetic Resonance in Medicine*, 64(1):138–148, 2010
12. O. Michailovich and **Y. Rathi**, "On approximation of orientation distributions by means of spherical ridgelets", *IEEE Transactions on Image Processing*, 19(3):1–17, March 2010
13. J. G. Malcolm, M. E. Shenton and **Y. Rathi***, "Filtered multi-tensor tractography", *IEEE Trans. on Medical Imaging*, 29:1664–1675, 2010
14. **Y. Rathi**, M. Kubicki, S. Bouix, C-F Westin, J. Goldstein, L. Seidman, R. Mesholam-Gately, R. W. McCarley and M.E. Shenton, "Statistical Analysis of Fiber Bundles using Multi-tensor Tractography: Application to First-episode Schizophrenia", *Magnetic Resonance Imaging*, 29(4):507–515, 2011
15. J. G. Malcolm, **Y. Rathi** and C.-F. Westin, *Processing and Visualization of Diffusion MRI*, in: T. Deserno, (ed.), *Recent Advances in Biomedical Image Processing and Analysis*, chapter 16, pp. 387–410. Springer, 2011
16. S. Lienhard, J. Malcolm, C-F Westin and **Y. Rathi***, "A full bi-tensor neural tractography algorithm using the unscented Kalman filter", *EURASIP journal on Advances in signal processing: Reproducible Research in Signal Processing*, 2011
17. O. Michailovich, S. Dolui and **Y. Rathi**., "Spatially Regularized Compressed Sensing for High Angular Resolution Diffusion Imaging", *IEEE Transactions on Medical Imaging*, 2011

18. A. Venkataraman, **Y. Rathi**, M. Kubicki, C-F Westin and P. Golland, "Joint modeling of anatomical and functional connectivity for population studies", *IEEE Transactions on Medical Imaging*, 2012
19. M.E. Shenton, H. Hamoda, J. Schneiderman, S. Bouix, O. Pasternak, **Y. Rathi**, M-A Vu, M. Purohit, K. Helmer, I. Koerte, A. Lin, C-F Westin, R. Kikinis, A. Stern and R. Zafonte, "A Review of Magnetic Resonance Imaging and Diffusion Tensor Imaging Findings in Mild Traumatic Brain Injury", *Brain Imaging and Behavior*, 2012
20. Y. Gao, **Y. Rathi**, S. Bouix and A. Tannenbaum, "Filtering in the Diffeomorphic group and Registration of point sets", *IEEE Transactions on Image Processing*, 2012
21. S. Bouix, O. Pasternak, **Y. Rathi**, P.E. Pelavin, R. Zafonte and M.E.Shenton, "Increased Gray Matter Diffusion Anisotropy in Patients with Persistent Post-Concussive Symptoms following Mild Traumatic Brain Injury", *PLoS ONE*, 8:e66205, 2013
22. **Y. Rathi**, O. Pasternak, P. Savadjiev, O. Michailovich, S. Bouix, M. Kubicki, C-F Westin, N. Makris and M.E.Shenton, "Gray matter alterations in early aging: A diffusion magnetic resonance imaging study", *Human Brain Mapping*, 2014
23. **Y. Rathi**, O. Michailovich, F. Laun, K. Setsompop and C-F Westin, "Multi shell diffusion signal recovery from sparse measurements", *Medical Imaging Analysis*, 2014

Peer-Reviewed Articles published in Conference Proceedings

Note: International Conferences publications presented here are full length peer-reviewed articles. International Conferences such as ICCV, ECCV, CVPR and MICCAI are viewed as important as journal publications in the computer science community. Acceptance rates are provided when made available by the program committee. The acceptance rate of oral presentations is also provided when the paper was presented as a talk.

1. **Y. Rathi**, N. Vaswani, A. Tannenbaum and A. Yezzi, *Particle filtering for geometric active contours with application to tracking moving and deforming objects*, in: *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, volume 2, pp. 2–9, 2005, **oral presentation - top 5% of accepted papers, acceptance rate $\sim$ 25%**.
2. **Y. Rathi**, S. Dambreville and A. Tannenbaum, "Comparative analysis of kernel methods for statistical shape learning", *Lecture Notes in Computer Science*, 4241:96, 2006.
3. **Y. Rathi**, P. Olver, G. Sapiro and A. Tannenbaum, *Affine invariant surface evolutions for 3D image segmentation*, in: *SPIE Proceedings on Electronic Imaging*, volume 6064, pp. 1–5, 2006.
4. **Y. Rathi**, S. Dambreville and A Tannenbaum, "Particle Filtering with Dynamic Shape Priors", *Lecture Notes in Computer Science*, 4141:886, 2006, **acceptance rate $\sim$ 25%**.
5. **Y. Rathi**, S. Dambreville and A. Tannenbaum, *Statistical shape analysis using kernel PCA*, in: *SPIE Proceedings on Electronic Imaging*, volume 6064, pp. 425–432, 2006.
6. **Y. Rathi**, O. Michailovich, J. Malcolm and A. Tannenbaum, *Seeing the unseen: Segmenting with distributions*, in: *Intl. Conf. Signal and Image Processing*, volume 534, 2006.
7. N. Vaswani, A. Yezzi, **Y. Rathi** and A. Tannenbaum, *Time-varying finite dimensional basis for tracking contour deformations*, in: *IEEE Conference on Decision and Control*, pp. 1665–1672, 2006.
8. N. Vaswani, A. Yezzi, **Y. Rathi** and A. Tannenbaum, *Particle Filters for Infinite (or Large) Dimensional State Spaces-Part*, in: *IEEE Conference on Acoustics, Speech and Signal Processing*, volume 3, 2006.
9. S. Dambreville, **Y. Rathi** and A. Tannenbaum, "A shape-based approach to robust image segmentation", *Lecture Notes in Computer Science*, 4141:173, 2006, **acceptance rate $\sim$ 25%**.
10. S. Dambreville, **Y. Rathi** and A. Tannenbaum, *Shape-based approach to robust image segmentation using kernel PCA*, in: *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, volume 1, pp. 977–984, 2006, **acceptance rate $\sim$ 25%**.
11. S. Dambreville, **Y. Rathi** and A. Tannenbaum, *Nonlinear shape prior from kernel space for geometric active contours*, in: *SPIE Proceedings on Electronic Imaging*, volume 6064, pp. 404–412, 2006.
12. S. Dambreville, **Y. Rathi** and A. Tannenbaum, *Tracking deformable objects with unscented kalman filtering and geometric active contours*, in: *American Control Conference*, pp. 1–6, 2006, **Received the O. Hugo Schuck Best Paper Award**.
13. **Y. Rathi**, A. Tannenbaum and O. Michailovich, *Segmenting images on the tensor manifold*, in: *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 1–8, 2007, **acceptance rate $\sim$ 25%**.
14. J. Malcolm, **Y. Rathi** and A. Tannenbaum, *Graph cut segmentation with nonlinear shape priors*, in: *IEEE International Conference on Image Processing (ICIP)*, volume 4, 2007.

15. J. Malcolm, **Y. Rathi** and A. Tannenbaum, *A graph cut approach to image segmentation in tensor space*, in: *Workshop on Component Analysis held with CVPR*, pp. 1–8, 2007.
16. J. Malcolm, **Y. Rathi** and A. Tannenbaum, *Tracking through clutter using graph cuts*, in: *British Machine Vision Conference*, 2007.
17. J. Malcolm, **Y. Rathi** and A. Tannenbaum, *Multi-object tracking through clutter using graph cuts*, in: *Workshop on Non-rigid Registration and Tracking Through Learning (ICCV)*, 2007.
18. J. Malcolm, **Y. Rathi**, A. Yezzi and A. Tannenbaum, *Fast approximate surface evolution in arbitrary dimension*, in: *SPIE Conference on Medical Imaging*, 2008.
19. J. Malcolm, **Y. Rathi**, A. Yezzi and A. Tannenbaum, *Fast approximate curve evolution*, in: *SPIE Proceedings on Electronic Imaging*, volume 6811, 2008.
20. J. Malcolm, **Y. Rathi**, M.E. Shenton and A. Tannenbaum, *Label Space: A Coupled Multi-shape Representation*, in: *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 416–424. Springer, 2008.
21. J. Malcolm, **Y. Rathi** and A. Tannenbaum, *Label Space: A Multi-object Shape Representation*, volume 4958, p. 185. Springer, 2008.
22. **Y. Rathi**, O. Michailovich, S. Bouix and M. Shenton, *Directional Functions for Orientation Distribution Estimation*, in: *International Symposium on Biomedical Imaging*, pp. 927–930, 2008.
23. **Y. Rathi**, S. Dambreville, M. Niethammer, J. Malcolm, J. Levitt, M.E. Shenton and A. Tannenbaum, *Segmenting images analytically in shape space*, in: *SPIE Conference on Medical Imaging*, volume 6914, 2008.
24. **Y. Rathi**, O. Michailovich, S. Bouix and M. E. Shenton, *Orientation Distribution Estimation for Q-Ball Imaging*, in: *IEEE Workshop on Tensor Processing in Computer Vision held with CVPR*, 2008.
25. O. Michailovich, **Y. Rathi** and M. E. Shenton, *On approximation of orientation distributions by means of spherical ridgelets*, in: *International Symposium on Biomedical Imaging*, pp. 939–942, 2008.
26. J. Malcolm, M.E. Shenton and **Y. Rathi***, *Neural Tractography Using An Unscented Kalman Filter*, in: *Information Processing in Medical Imaging (IPMI)*, 2009 **oral presentation, acceptance rate $\sim$ 30%**. [1]
27. J. G. Malcolm, M. E. Shenton and **Y. Rathi***, *Two-Tensor Tractography Using a Constrained Filter*, in: *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, pp. 894–902, 2009 **acceptance rate $\sim$ 32%**.
28. J. Malcolm, M.E. Shenton and **Y. Rathi***, *Validation on Physical Phantom: Two-Tensor Tractography*, in: *Workshop on Diffusion Modeling and Fiber Cup, MICCAI*, 2009.
29. J. Malcolm, M.E. Shenton and **Y. Rathi***, *The Effect of Local Fiber Model on Population Studies*, in: *Workshop on Diffusion Modeling and Fiber Cup, MICCAI*, 2009.
30. O. Michailovich and **Y. Rathi**, *Spatially regularized Q-ball imaging using spherical ridgelets*, in: *International Symposium on Biomedical Imaging*, 2010 - In Press.
31. **Y. Rathi**, J Malcolm, S. Bouix, C-F Westin and M E Shenton, *Disease Classification: A probabilistic Approach*, in: *International Symposium on Biomedical Imaging*, 2010 - In Press.
32. **Y. Rathi**, J. Malcolm, O. Michailovich, J. Goldstein, L. Seidman, R. W. McCarley, C.-F. Westin and M. E. Shenton, *Biomarkers for identifying first-episode schizophrenia patients using diffusion weighted imaging*, in: *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, volume 6361, pp. 657–665, 2010.
33. P. Savadjiev, **Y. Rathi**, J. G. Malcolm, M. E. Shenton and C.-F. Westin, *A geometry-based particle filtering approach to white matter tractography*, in: *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, volume 6362, pp. 233–240, 2010.
34. O. Michailovich and **Y. Rathi**, *Fast and accurate reconstruction of HARDI data using compressed sensing*, in: *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2010.
35. A. Venkataraman, **Y. Rathi**, C-F Westin and P. Golland, *Joint generative model for fMRI/DTI and its application to population studies*, in: *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2010.
36. Y. Feng, P. Savadjiev, **Y. Rathi**, M. Quan, Z. Wang and C-F Westin, *A Swarm Tracking Approach for Stochastic White matter Tractography*, in: *International Symposium on Biomedical Imaging*, 2011.
37. D. Forsberg, **Y. Rathi**, S. Bouix, D. Wassermann, H. Knutsson and C-F Westin, *Improving Registration using Multi-Channel Diffeomorphic Demons Combined with Certainty Maps*, in: *Multi-modal Biomedical Image Analysis*, 2011.

[1] * Director of the project as a Thesis advisor.

38. S. Dolui, O. Michailovich and **Y. Rathi**, *Compressed Sensing of diffusion MRI data using partial regularization and positivity constraints*, in: *International Symposium on Biomedical Imaging*, 2011.
39. D. Wassermann, **Y. Rathi**, S. Bouix, M. Kubicki, M.E.Shenton, R. Kikinis and C-F Westin, *White matter bundle registration and population analysis based on Gaussian Processes*, in: *Information Processing in Medical Imaging (IPMI)*, 2011.
40. **Y. Rathi**, O. Michailovich, S. Bouix, M. E. Shenton and C-F Westin, *Sparse Multi-Shell Diffusion Imaging*, in: *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*. Springer, 2011.
41. S. Dolui, **Y. Rathi** and O. Michailovich, *Reconstruction of HARDI using compressed sensing and its application to contrast HARDI*, in: *Mathematical Methods in Biomedical Image Analysis*, 2012.
42. P. Savadjiev, **Y. Rathi**, S. Bouix, M. E. Shenton, R. Verma and C-F Westin, *Multi-scale characterization of white matter tract geometry*, in: *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, p. accepted, 2012.
43. C. Baumgartner, O. Michailovich, O. Pasternak, S. Bouix, , J. Levitt, M. E. Shenton, C-F Westin and **Y. Rathi**, *A unified tractography framework for comparing diffusion models on clinical scans*, in: *Workshop on Computational Diffusion MRI (CDMRI)*, 2012.
44. D. Wassermann, N. Makris, **Y. Rathi**, M.E. Shenton, R. Kikinis, M. Kubicki and C-F Westin, *On Describing Human White Matter Anatomy: The White Matter Query Language*, in: *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2013.
45. P. Savadjiev, **Y. Rathi**, S. Bouix, A. Smith, R. Schultz, R. Verma and C-F Westin, *Fusion of white and gray matter geometry: a framework for investigating brain development*, in: *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2013.
46. **Y. Rathi**, B. Gagoski, K. Setsompop, O. Michailovich, P.E. Grant and C-F Westin, *Diffusion Propagator Estimation from Sparse Measurements in a Tractography Framework*, in: *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2013.
47. **Y. Rathi**, M. Niethammer, , F. Laun, K. Setsompop, O. Michailovich, P.E. Grant and C-F Westin, *Diffusion Propagator Estimation using Radial Basis Functions*, in: *CDMRI Workshop held with MICCAI*, 2013.
48. **Y. Rathi**, B. Gagoski, K. Setsompop, P.E. Grant and C-F Westin, *Comparing simultaneous multislice diffusion acquisitions*, in: *CDMRI Workshop held with MICCAI*, 2013.
49. **Y. Rathi**, O. Michailovich, K. Setsompop and C-F Westin, *A dual-spherical model for multi-shell diffusion imaging*, in: *SPIE Medical Imaging*, 2014.
50. **Y. Rathi**, L. Ning, O. Michailovich, H. Liao, P.E. Grant, B. Gagoski, R. Stern, M.E. Shenton, C-F Westin and A. Lin, *Maximum entropy estimation of Glutamate and Glutamine in MR spectroscopic imaging*, in: *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2014.

Abstracts

1. **Y. Rathi**, J.G. Malcolm, S. Bouix, G. Kindlmann, C.-F. Westin, M. Kubicki and M.E. Shenton, *Mixture Model for estimating fiber ODF and multi-directional Tractography*, in: *International Society For Magnetic Resonance in Medicine Scientific Meeting*, 2009.
2. P. Srinivasan, **Y. Rathi**, R. W. McCarley, M. E. Shenton and S. Bouix, *Measuring Neocortical Gray Matter Volume in Chronic Schizophrenia: an Automated MR study*, in: *Mysell Harvard Research Day, Psychiatry Annual Meeting*, 2009.
3. H. P. Ng, M. Kubicki, P. Pelavin, **Y. Rathi**, J. Malcolm, R. Kikinis, , R. McCarley and M. E. Shenton, *Inter-hemispheric fiber tracts between bilateral superior temporal gyrus gray matter and its asymmetry measures in chronic schizophrenia*, in: *Mysell Harvard Research Day, Psychiatry Annual Meeting*, 2010.
4. H. P. Ng, M. Kubicki, **Y. Rathi**, J. Malcolm, P. Pelavin, R. Kikinis and M. E. Shenton, *Decreased fractional anisotropy in inter-hemispheric connection between bilateral superior temporal gyrus gray matter in chronic schizophrenia*, in: *Schizophrenia International Research Society Conference*, 2010.
5. H. P. Ng, M. Kubicki, J. Malcolm, **Y. Rathi**, P. Pelavin, R. W. McCarley and M. E. Shenton, *Diffusion two-tensor tractography study on inter-hemispheric connection between bilateral heschl gyrus in schizophrenia*, in: *International Society For Magnetic Resonance in Medicine Scientific Meeting*, 2010.
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