

John Tilak Ratnanather

PERSONAL

Work: Center for Imaging Science, Whitaker Biomedical Engineering Institute, The Johns Hopkins University, Clark 301, 3400 North Charles Street, Baltimore, MD 21218.

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RESEARCH INTERESTS

Mathematical models in image analysis of the brain specifically hippocampus, cingulate gyrus, planum temporale, superior temporal gyrus, auditory cortex and medial prefrontal cortex which have been implicated in a variety of neuropsychiatric and neurodevelopmental disorders as schizophrenia, Alzheimer's, epilepsy, major depression, speech and language processing.

Mathematical models of physiological fluid mechanics phenomena such as cochlear fluid mechanics and micromechanics of cochlear outer hair cell.

Computational and analytical methods for solving nonlinear partial differential equations arising in fluid mechanics and biology (e.g. boundary layer separation and EPDiff)

Online webcourses in applied mathematics.

EDUCATION

University of Oxford. D.Phil. Mathematics. "Numerical Analysis of Turbulent Flows". (Joint Advisors: J. S. Rollett and K. W. Morton). 1985–89.

University College London, University London. B.Sc. Mathematics. 1982–85.

PROFESSIONAL EXPERIENCE

Assistant Research Professor, Center for Imaging Science, Dept. of Biomedical Engineering, Johns Hopkins University, Baltimore, MD. (2/02–).

Assistant Research Professor, Institute for Computational Medicine, Johns Hopkins University, Baltimore, MD. (2/06–).

Assistant Research Professor, Dept. of Applied Mathematics and Statistics, Johns Hopkins University, Baltimore, MD. (10/06–).

Visiting Scientist, Institute of Fundamental Science, Massey University, Palmerston North, New Zealand. (05)

Staff Scientist, F.M. Kirby Functional Imaging Research Center, Kennedy Krieger Institute, Baltimore, MD. (8/01–).

Research Associate, Center for Imaging Science, Depts of Electrical and Computer Engineering and Biomedical Engineering, Johns Hopkins University, Baltimore, MD. (9/98–2/02)

Postdoctoral Fellow, Dept. of Biomedical Engineering, Johns Hopkins University School of Medicine, Baltimore, MD. (10/94–8/98)

Postdoctoral Fellow, Dept of Otolaryngology–Head & Neck Surgery, Johns Hopkins University School of Medicine, Baltimore, MD. (10/91–9/94)

Visiting Scientist, Dept. of Mathematics, City University London. (92–01)

Postdoctoral Fellow, Dept. of Mathematics, City University London. (10/89–9/91)

Visiting Scientist, Dept. of Mechanical Engineering, University of Sydney, Australia. (7/91)

Visiting Scientist, Dept. of Mechanical Engineering, Clarkson University, Potsdam, NY. (8/90)

AWARDS AND HONORS

NSF/University of California Program in Mathematics and Molecular Biology Postdoctoral Fellow (10/94–9/96)

Royal Society of London - Australian Academy of Sciences Postdoctoral Fellow. (7/91)

PROFESSIONAL ACTIVITIES

Invited Colloquia

1. "Music and Deafness", Workshop at the 31st Midwinter Meeting of the Association for Research in Otolaryngology, Phoenix, AZ (organizer, 2/08).
2. "Computational Auditory Phrenology: scratching the surface", Workshop on functional organization of the laminar structure of the auditory cortex (also organizer), Johns Hopkins University (2/06)
3. "Computational Anatomy: New Frontiers in Biomedical Imaging" Session co-chair, 2005 Annual Fall Meeting, Biomedical Engineering Society, Baltimore, MD (9/05)
4. "Computational Anatomy of the Auditory Cortex: implications for auditory rehabilitation". 4th Research Symposium for Non-Scientists at the International Convention of the Alexander Graham Bell Association for the Deaf and Hard of Hearing, Anaheim, CA. (6/04).

5. "Computing Metric Distances Between Shapes and the Euler-Poincaré Equations of Computational Anatomy", Short Course at "Image Analysis and Understanding Data from Scientific Experiments" workshop, Los Alamos National Laboratory, Los Alamos, NM. (12/02).
6. Co-chair, Mini-Symposium on "Biomedical Image Analysis and Registration" at 50th SIAM Annual Meeting, Philadelphia, PA. (7/02)
7. "Computing Geodesics Between Anatomical Images", Mini-Symposium on "Comparative Mathematical Structures in 3D Medical Image Analysis" at the 1st SIAM Conference on Imaging Sciences, Boston, MA (3/02).

Invited Presentations

1. "Applications of the Alternating Kernel Mixture model in Computational Anatomy", Graduate School of Biomedical Engineering, University of New South Wales, Sydney, Australia (9/07).
2. "Neuro-imaging of the Deafened Auditory Cortex: potential applications and challenges", Developing a Listening Ear, Newbury, England (7/07).
3. "A few unresolved, if not peripheral, questions on the auditory periphery from the periphery!", The Auditory System, Mathematical Biosciences Institute, Ohio State University (6/07).
4. "Computational Auditory Phrenology: scratching the surface", Mary Hare Grammar School for the Deaf, Newbury, England (6/06)
5. "Computational Anatomy of the deafened auditory cortex: implications for auditory rehabilitation", Division of Audiology, School of Population Health, University of Auckland, New Zealand (8/05).
6. "Computational Anatomy: shape analysis of brain, cortical, cardiac and dendritic structures", New Zealand Institute of Fundamental Sciences, Massey University (8/05).
7. "Salicylate effect on the hydraulic conductivity of the cochlear outer hair cell wall", Auditory Physiology Group, University of Auckland, New Zealand (8/05).
8. "Cortical cartography of the planum temporale in the auditory cortex", Neuropsychiatry Group, Prince of Wales Medical Research Institute, University of New South Wales, Sydney, Australia (8/05).
9. "Computational Anatomy: implications for auditory rehabilitation", Bionic Ear Institute, University of Melbourne, Australia (10/03).
10. "Computational Anatomy: implications for auditory rehabilitation", Cochlea Interest Group, University of New South Wales, Sydney, Australia (10/03).
11. "Beyond the auditory cortex: possible applications of computational anatomy", Cochlear Biophysics Laboratory, Bobby R. Alford Dept. of Otorhinolaryngology, Baylor College of Medicine, Houston, TX. (10/01)
12. Panelist, "Mentoring Women and Minorities", National Partnership in Advanced Computational Infrastructure, All Hands Meeting, San Diego Supercomputer Center. (2/00)
13. "The Ear-Works: the cellular basis of hearing", Colloquium, California State University Northridge. (1/99)
14. "Shake, rattle and roll: the mathematical biology of hearing", Dept. of Mathematics, California State University Northridge. (1/99)
15. "Dancing cochlear outer hair cells: the mathematical biology of hearing", Dept. of Mathematics, Howard University. (4/98)
16. Panelist at "Hear and Now" symposium at Midwinter Meeting of the Association for Research in Otolaryngology, St. Petersburg, FL. (2/97)
17. "What they didn't teach us at school? - Fire in the belly", Oxford Brookes University School of Education, Oxford, England. (8/96)
18. "Is the outer hair cell wall viscoelastic?", Program in Mathematics and Molecular Biology retreat, Napa, CA. (5/96)
19. "Water permeability and membrane-cytoskeleton-subsurface cisterna association in the cochlear outer hair cell", Program in Mathematics and Molecular Biology retreat, Napa, CA. (1/95)
20. "Making the most of the Sun workstation". Dept. of Mathematics, City University London. (10/91)
21. "On self induced thermal boundary layer separation". Dept. of Mathematics, University of New South Wales, Sydney, Australia. (7/91)
22. "Asymptotic modeling of turbulent and thermal boundary layers". Dept. of Mechanical Engineering, Johns Hopkins University, Baltimore, MD. (2/91)
23. "Numerical analysis of turbulent flows", Dept. of Mathematics, City University London. (2/90)
24. "Numerical analysis of turbulent flows", Dept. of Mathematics, University College London. (1/90)

Reviewer

1. ZRG1 MDCN-G (55) Human Brain Project Study Section, National Institutes of Health (9/04).
2. The Volta Review; Quarterly Journal of Mechanics and Applied Mathematics; Journal of Women and Minorities in Science and Engineering; NeuroImage; IEEE Trans. in Biomedical Engineering; Journal of Mathematical Imaging and Vision; SIAM J. Sci. Comp.; Louisiana State University: external review of NSF pre-proposal; MICCAI; IEEE Trans on Image Processing; Annals of Biomedical Engineering; IEEE Trans in Medical Imaging; Psychiatry Research: Neuroimaging; Medical Image Analysis.
3. Guest co-editor NeuroImage Special Issue "Mathematics in Brain Imaging". Vol 23. Supplement 1. September 2004.

Committee

1. Program Committee, Frontiers in the Convergence of Bioscience and Information Technology, Korea, 2007.

2. Program Committee, Summer 2007 Program on the Geometry and Statistics of Shape Spaces, SAMSI, Raleigh, NC, 2007.
3. Ad-Hoc Committee for Patients Advocacy Group Relations, Association for Research in Otolaryngology. (6/00–6/03; 3/05-)
4. Organizing Committee, Research Symposium, Alexander Graham Bell Association for the Deaf, Washington, DC. (04-)
5. College Financial Aid Award Committee, Alexander Graham Bell Association for the Deaf, Washington, DC. (7/96–)
6. Program Committee, 1998 Alexander Graham Bell Association for the Deaf International Convention, Little Rock, AR.
7. Federal Communications Commission Hearing Aid Compatible Telephone Act Negotiated Rulemaking Committee, Washington, DC. (5/95)

Teaching

1. “Dynamic Programming Applications in Defining Cortical Manifold Boundaries”, invited tutorial, Institute of Pure and Applied Mathematics Graduate Summer School “Mathematics in Brain Imaging”, University of California, Los Angeles. (7/04).
2. “Introduction to Metric Pattern Theory” web course designer and developer. (<http://www.cis.jhu.edu/education/introPatternTheory>)
3. Technology Fellow Mentor, Johns Hopkins University (03-04) and (08-09)
4. Mathematical Association of America/National Science Foundation Project Welcome Fellow: developing interactive web course in Pattern Theory for students from underrepresented communities (7/01–4/04).
5. “Computational Anatomy of the Brain” Research Experience for Undergraduate (REU) Award from Education, Outreach and Training in Partnership in Advanced Computational Infrastructure (EOT-PACI) University of California at San Diego. (00-05)
6. Short Course Instructor “The Power of the Internet -- what it can do for you”, 1998 International Convention of the Alexander Graham Bell Association for the Deaf, Little Rock, AR.
7. Guest Instructor, Physiological Fluid Mechanics, Dept. of Biomedical Engineering, Johns Hopkins University School of Medicine. (4/93; 4/95)

Professional Organizations

Association for Research in Otolaryngology; Society for Industrial and Applied Mathematics (including Life Sciences and Imaging Sciences Groups); American Mathematical Society; Biomedical Engineering Society; Alexander Graham Bell Association for the Deaf and Hard of Hearing, Society for Neuroscience, Organization for Human Brain Mapping.

GRANT FUNDING

Current

1. “Adult Children Study – Neuroanatomical Biomarkers”, Co-investigator, National Institute of Aging, NIH (9/05-)
2. “Focused Research Group: The geometry, mechanics and statistics of the infinite-dimensional manifold of shapes”, Co-investigator, Division of Mathematical Sciences, NSF (7/05-6/08).
3. “Assessment of the Right Hemisphere Auditory Speech Function”, Co-investigator, National Institute of Deafness and Other Communication Disorders, NIH (4/05-03/07)
4. “Morphometry of the Superior Temporal Gyrus” Principal Investigator, National Institute of Mental Health, NIH (1/04-12/07).
5. “Computational Anatomy of the deafened auditory cortex” Principal Investigator, National Organization for Hearing Research Foundation. (1/04-12/05)
6. “National Center for Research Resource (NCRR) for Quantitative Functional MRI at 1.5 Tesla: Technical and Research Development (TRD) Program - Algorithmic Methods for Anatomical Brain Analysis” Co-Investigator with M. I. Miller as part of the F.M. Kirby Functional Imaging Center, Kennedy-Krieger Institute, Baltimore, MD. (7/01–6/07)
7. “High Dimensional Brain Mapping Core” Conte Center for Neuroscience Research, Washington University St Louis Co-Investigator with M.I. Miller (9/01-7/09)

Prior

1. “Healthy Aging and Senile Dementia Program Project – Preclinical Diagnosis of Alzheimer’s Disease by High Dimensional Brain Mapping”. Principal Investigator as part of sub-contract with Washington University St Louis. (10/01–12/03)
2. “Mechanics of cochlear outer hair cell” Supplemental award NIDCD. (12/96-7/98)
3. “The biophysics of the subsurface cisterna of the cochlear outer hair cell,” NSF/University of California Berkeley Program in Mathematical and Molecular Biology. (10/94 – 9/96)
4. “Computer models of outer hair cell motility,” Deafness Research Foundation. (1/93-12/95)

PUBLICATIONS

In Progress

1. Ratnanather, J.T., Lal, R.M., An, M., Poynton, C., Qiu, A., Mori, S., Miller, M.I. Probabilistic Generation of White Matter Fiber Tracts in Diffusion Tensor Imaging.
2. Davis, A.M.J., Ceritoglu, C., Ratnanather, J.T. A Stokesian analysis of a viscous jet impinging on a planar wall.

In review

1. Ceyhan, E., Ceritoglu, C., Beg, M.F., Wang, L., Morris, J.C., Csernansky, J.G., Miller, M.I., Ratnanather, J.T. Metric distances between hippocampal shapes predict different rates of shape changes in dementia of Alzheimer type and nondemented subjects.
2. Penumetcha N, Kabadi S, Jedynak B, Walcutt C, Gado MH, Wang L, Ratnanather JT (2008) Geometric-intensity based semi-automated delineation of the tentorium cerebelli from MRI scans. *Medical Image Analysis* (submitted)
3. Younes, L., Zweck, J., Wang, L., Hosakere, M., Ratnanather, J.T., Csernansky, J.G., Miller, M.I. Statistical Analysis of Surface Roughness via Local Area Maps: Application to the Cingulate Gyrus in Healthy and Schizophrenic Subjects
4. Fawkes, W.G., Ratnanather, J.T. Music at Mary Hare Grammar School for the Deaf from 1975 to 1988: a historical perspective (*Visions of Research in Music Education*)
5. Ceyhan, E., Hosakere, M., Nishino, T., Alexopolous, J., Todd, R.D., Ratnanather, J.T., Miller, M.I., Botteron, K.N. Statistical Analysis of Cortical Thickness Using Pooled Distances from Labeled Cortical Distance Maps.
6. Ceyhan, E., Hosakere, M., Nishino, T., Alexopolous, J., Todd, R.D., Ratnanather, J.T., Miller, M.I., Botteron, K.N. Censoring Methods for Statistical Analysis of Cortical Thickness Using Labeled Cortical Distance Maps.
7. Botteron, K.N., Nishino, T., Alexopoulos, J.A., Hosakere, M., Priebe, C.E., Ratnanather, J.T., Flake, L., Singer, T., Rogers, C., Todd, R.D., Ceyhan, E., Miller, M.I. Ventral Medial Prefrontal Cortex Metrics in Early Onset Major Depressive Disorder: A Twin MRI Study.
8. Miller, M.I., Priebe, C., Qiu, A., Kolasny, A., Brown, T., Park, Y., Ratnanather, J.T., Busa, E., Jovicich, J., Yu, P., Dickerson, B., Buckner, R.L. and Morphometry BIRN. Collaborative Computational Anatomy: An MRI Morphometry Study of the Human Brain via Diffeomorphic Metric Mapping (*Human Brain Mapping*)
9. Botteron KN, Babb CM, Nishino T, Ratnanather JT, Miller MI, Belden AC, Luby JL (2008) Hippocampus Volume and Cortisol in Preschool Onset Major Depression. (submitted)

Books & Book Chapters

1. Winslow, R.L., Helm, P., Baumgartner, W., Peddi, S., Ratnanather, T., McViegh, E. and Miller, M.I. Imaging-based integrative models of the heart: closing the loop between experiment and simulation. In “ ‘In Silico’ Simulation of Biological Processes: Novartis Foundation Symposium, Volume 247”. p. 129-143. Eds. Bock, G., Goode, J.A. 2002.
2. Ratnanather, J.T., Spector, A.A., Popel, A.S., Brownell, W.E. Is the outer hair cell wall viscoelastic? In “Diversity in Auditory Mechanics”, Eds. Lewis, E.R., Long, G.R., Lyon, R.F., Narins, P.M., Steele, C.R., Hecht-Poinar, E. World Scientific, 1997.
3. Brownell, W.E., Ratnanather, J.T., Popel, A.S., Zhi, M., Sit, P.S. Labyrinthine lateral walls: cochlear outer hair cell permeability and mechanics. In “Active Hearing”, Eds. A. Flock, D. Ottoson, M. Ulfendahl. Elsevier Science Ltd, 1995.
4. Ratnanather, J.T., Brownell, W.E., Popel, A.S. The mechanical properties of the cochlear outer hair cell. In “Biophysics of Hair Cell Sensory Systems”, Eds. Duifhuis, D., Wit, H., VanDijk, P.M., World Scientific Press, 1993.

Peer-reviewed papers

1. Lee, N., Penumetcha, N., Priebe, C.E., Miller, M.I., Ratnanather, J.T. Validation of Alternating Kernel Mixture Method: Application to Segmentation of Cortical and Sub-cortical Brain Structures. *J. Biomedicine and Biotechnology* (in press) 2008.
2. Lee N, Priebe CE, Ratnanather JT, Miller MI. 2007. Validation of Alternating Kernel Mixture Method Based Segmentation of the Human Brain. 2007 *Frontiers in the Convergence of Bioscience and Information Technologies*, pp. 477-481
3. Zhang, S., Younes, L., Zweck, J., Ratnanather, J.T. Diffeomorphic Surface Flow: a novel method of surface evolution. *SIAM J. App. Math.* 68:806-824, 2008.
4. Penumetcha, N., Jedynak, B., Hosakere, M., Ceyhan, E., Botteron, K.N., Ratnanather, J.T. Segmentation of arteries in MPRAGE images of the ventral medial prefrontal cortex. *Comp. Med. Imag. Graph* 32:36-43, 2008.
5. Qiu, A., Vaillant, M., Barta, P., Ratnanather, J.T., Miller, M.I. Surface-Based Gaussian Random Field Model with Application to Cortical Thickness Variation of Left Planum Temporale in Schizophrenia and Bipolar Disorder. *Hum. Brain Mapp.* (online), 2007.
6. Qiu, A., Younes, L., Wang, L., Ratnanather, J.T., Gillespie, S.K., Kaplan, G., Csernansky, J.G., Miller, M.I., Combining Anatomical Manifold Information via Diffeomorphic Metric Mappings for Studying Cortical Thinning of the Cingulate Gyrus in Schizophrenia. *Neuroimage*, 37,821-833, 2007.
7. Munn, M.A., Alexopoulos, J., Nishino, T., Babb, C.M., Flake, L.A., Singer, T., Ratnanather, J.T., Todd, R.D., Miller, M.I., Botteron, K.N. Amygdala volume analysis in female twins with major depression. *Biological Psychiatry*, 62,415-422, 2007.
8. Wang, L., Hosakere, M., Trein, J.C.L., Ratnanather, J.T., Barch, D.M., Thompson, P.A., Qui, A., Gado, M., Miller, M.I., Csernansky, J.G. Abnormalities of Cingulate Gyrus Neuroanatomy in Schizophrenia. *Schizophrenia Res.*, 93, 66-78, 2007.
9. Zhi, M., Ratnanather, J.T., Ceyhan, E., Popel, A.S., Brownell, W.E. Hypotonic swelling of salicylate treated cochlear outer hair cells. *Hearing Research*, 228, 95-104, 2007.
10. Wang, L., Beg, M.F., Ratnanather, J.T., Ceritoglu, C., Younes, L., Morris, J.C., Csernansky, J.G., Miller, M.I. Large Deformation Diffeomorphism and Momentum Based Hippocampal Shape Discrimination in Dementia of the Alzheimer Type. *IEEE Trans Med Imaging*. 26, 462-470, 2007.

11. Spector, A.A , Grosh, K., Ratnanather, J.T., Deo, N., Raphael, R.M. Electromechanical models of the outer hair cell composite membrane. *J. Membrane Biology*. 209:135-152. 2006.
12. Priebe, C.E., Miller, M.I., Ratnanather, J.T. Segmenting Magnetic Resonance Images via Hierarchical Mixture Modelling. *Computational Statistics and Data Analysis*. *Computational Statistics & Data Analysis*, 50, 551 – 567. 2006
13. Ratnanather, J.T., Wang, L., Nebel, M.B., Hosakere, M., Han, X., Csernansky, J.G., Miller, M.I. Generation and analysis of the cingulate gyrus cortical surface in healthy and schizophrenia subjects. *Psychiatry Research: NeuroImaging*, 132, 53-68. 2004.
14. Holm, D.D., Ratnanather, J.T., Trouvé, A and Younes, L. Soliton Dynamics in Computational Anatomy. *NeuroImage*. 23, S170-S178. 2004.
15. Csernansky, J.G., Wang, L., Joshi, S.C., Ratnanather, J.T., Miller, M.I. Computational Anatomy and Neuropsychiatric Disease: Probabilistic Assessment of Variation and Statistical Inference of Group Difference, Hemispheric Asymmetry, and Time-Dependent Change. *NeuroImage*, 23, S56-S68. 2004.
16. Miller, M.I., Hosakere, M., Barker, A.R., Priebe, C.E., Lee, N., Ratnanather, J.T., Wang, L., Gado, M., Morris, J.C., Csernansky, J.G. Labelled Cortical Mantle Distance Maps in the Cingulate Quantify Differences Between Dementia of the Alzheimer Type and Healthy Aging. *Proc. Nat. Acad. Sci.* 100(25):15172-7, 2003.
17. Ratnanather, J.T., Honeycutt, N.A., Lee, N.G., Morris, H.M., Dziorny, A.C., Hurdal, M.K., Barta, P.E., Pearlson, G.D., Miller, M.I. Dynamic Programming generation of boundaries of local coordinatize submanifolds in the neocortex: application to the Planum Temporale. *NeuroImage*, 20, 359-377, 2003.
18. Ratnanather, J.T., Botteron, K.N., Nishino, T., Lal, R., Massie, A.B., Patel, S.G., Peddi, S., Todd, R.D., Miller, M.I., Validation of Cortical Analysis of the Medial Prefrontal Cortex. *NeuroImage*,14,1058-1069, 2001.
19. Daniels, P.G., Ratnanather, J. T., On the thermal field of a separating wall jet. *J. Engng. Math.*, 40, 372-382, 2000.
20. Miller, M.I., Massie, A., Ratnanather, J.T., Botteron, K.N., Csernansky, J.G. Bayesian construction of geometrically based cortical thickness metrics. *Neuroimage*, 12, 676-687, 2000.
21. Ratnanather, J.T., Brownell, W.E., Popel, A.S. Analysis of the hydraulic conductivity of the extracisternal space of the cochlear outer hair cell. *J. Math. Biol.*, 40, 372-382, 2000.
22. Ratnanather, J.T., Zhi, M., Brownell, W. E., Popel, A.S. The ratio of elastic moduli of cochlear outer hair cell derived from osmotic experiments. *J. Acoust. Soc. Am.*, 99, 1025-1028, 1996.
23. Ratnanather, J.T., Zhi, M., Brownell, W.E., Popel, A.S. Measurements and a model of the outer hair cell hydraulic conductivity. *Hearing Research*, 96, 33-40, 1996.
24. Ratnanather, J.T., Daniels, P.G. Solution of the thermal boundary layer equations in regions of flow reversal. *SIAM J. App. Math.* 55, 192-204, 1995.
25. Phillips, W.R.C., Ratnanather, J.T. The outer region of a turbulent boundary layer. *Physics of Fluids A*, 2, 427-434, 1990.

Reviews

1. Ratnanather, J.T. Review of “Web Accessibility for People with Disabilities”, *Volta Review*, 102, no. 2, p.75-76.

Monographs

1. Ratnanather, J.T. Studies in simple turbulence models. Oxford University Computing Laboratory Numerical Analysis Group Research report, NA-87/7, 1987.

Posters and abstracts

1. Penumetcha N, Kabadi S, Jedynak B, Walcutt C, Gado MH, Wang L, Ratnanather JT Semi-automated delineation of the tentorium cerebelli from MRI scans. *Human Brain Mapping*, Melbourne, 2008.
2. Lee, N. Oishi, K., Faria, A., Ratnanather, J.T., Wen, W., Trollor, J., Sachdev, P. Automated localization of White Matter Hyperintensities(WMH) on DTI white matter tract atlas. *Human Brain Mapping*, Melbourne, 2008.
3. Harms, M.P.,Campanella, C., Wang, L., Aldridge, K., Moffitt, A.J., Keulper, J., Ratnanather, J., Miller, M.I., Barch, D.M., Csernansky, J. G. Abnormalities of prefrontal cortex neuroanatomy in siblings at risk for schizophrenia, Society for Neuroscience Annual Meeting, Washington, DC, 2008.
4. Selemon,L.D., Ceritoglu, C., Wang, L., Ratnanather, J.T., Csernansky, J.G., Miller, M.I., Rakic, P. The Pathologic Effects of Prenatal Irradiation on Cortical Area 46 in the Macaque: Morphometric Analysis of MR Images with Cytoarchitectonic Borders Transferred from Matching Histology Sections. Society for Biological Psychiatry, Washington, D.C. 2008.
5. Harms, M.P., Calabrese, D.R., Wang, L., Ratnanather, J., Miller, M.I., Csernansky, J. G. Abnormalities of cingulate gyrus neuroanatomy in siblings at risk for schizophrenia, Society for Neuroscience Annual Meeting, San Diego, 2007.
6. Ceritoglu, C., Wang, L., Malhotra, N., Ratnanather, J.T., Selemon, L.D., Csernansky, J.G., Miller, M.I. Delineation of a cytoarchitectonically defined macaque cortical area (46) in MRI via large deformation diffeomorphic metric mapping, Society for Neuroscience Annual Meeting, San Diego, 2007.
7. Rukhin, A., Vaillant, M., Qiu, A., Younes, L., Ratnanather, J.T. Analysis of hippocampal shape change over time in a study of Alzheimer’s Disease based on momenta of the EPDiff equation of Computational Anatomy. Effective Computational Methods for Highly Oscillatory Problems: The Interplay between Mathematical Theory and Applications, Isaac Newton Institute of Mathematical Sciences, Cambridge, UK. 2007.

8. Arrate, F., Younes, L., Ratnanather, J.T. A numerical method for solving the EPDiff equation of Computational Anatomy. *Effective Computational Methods for Highly Oscillatory Problems: The Interplay between Mathematical Theory and Applications*, Isaac Newton Institute of Mathematical Sciences, Cambridge, UK. 2007.
9. Arrate, F., Younes, L., Ratnanather, J.T. A numerical method for solving the EPDiff equation of Computational Anatomy. *Statistics of Shape Spaces*, SAMSI, Rayleigh, NC. 2007.
10. Lee, N.A., Mostofsky, S., Ratnanather, J.T. *Automated Cortical Analysis of Planum Temporales in Children with Autism*. Human Brain Mapping, Chicago, 2007.
11. Lee, N., Penumetcha, N., Priebe, C., Wang, L., Csernansky, J., Miller, M., Ratnanather, J. T. Alternating Kernel Mixture Segmentation of Hippocampus and Prefrontal Cortex: a validation study. *Human Brain Mapping*, Chicago, 2007.
12. Botteron, K.N, Babb, C.M., Nishino, T., Lobos, E., Todorov, A., Ratnanather, J.T., Miller, M.I., Chorbv, V., Todd, R.D. Lifetime trauma exposure, early onset MDD and 5-HTTLPR genotype influence on hippocampal volume in a young female twin sample. *Human Brain Mapping*, Chicago, 2007.
13. Ratnanather, J.T., Younes, L., Zweck, J., Wang, L., Hosakere, M., Csernansky, J.G., Miller, M.I. Statistical Analysis of Surface Roughness via Local Area Maps: Application to the Cingulate in Healthy and Schizophrenic Subjects. *International Congress on Schizophrenia Research*, Colorado Springs, CO. 2007.
14. Pisano, D.V., Poynton, C.B., Honeycutt, N.A., Barta, P.E, Ratnanather, J.T. Delineating the superior temporal gyrus using dynamic programming in schizophrenia and bipolar disorder. . *International Congress on Schizophrenia Research*, Colorado Springs, CO. 2007.
15. Qiu, A., Younes, L., Wang, L., Ratnanather, J.T., Csernansky, J.G., Miller, M.I. Cortical thinning of the cingulate gyrus in schizophrenia. *International Congress on Schizophrenia Research*, Colorado Springs, CO. 2007.
16. Pisano, D.V., Barta, P., Ratnanather, J.T. Morphometrics of the Superior Temporal Gyrus in the General Population. *Midwinter Meeting of the Association for Research in Otolaryngology*, 2007.
17. Wang, L., Gillespie, S.K., Crismale, J., Hosakere, M., Yeung, L., Ratnanather, J.T., Gado, M.H., Miller, M.I., Morris, J.C., Csernansky, J.G. Structural mapping of the entorhinal cortex in MCI/AD subjects: a validation study. *Society for Neuroscience Annual Meeting*, Atlanta, GA, 2006.
18. Botteron, K.N., Babb, C.M., Nishino, T., Storch, E., Flake, L., Todd, R.D., Ratnanather, J.T., Miller, M.I., Hippocampus Volume in Twins with Early Onset Major Depression. *Human Brain Mapping*, Florence, 2006.
19. Ceyhan, E., Poynton, C., Qiu, A., Barta, P., Miller, M.I., Ratnanather, J.T., Statistical Analysis of Gender, Laterality and Diagnosis Effect on Planum Temporale. *Human Brain Mapping*, Florence, 2006.
20. Qiu, A., Vaillant, M., Barta, P., Miller, M.I., Ratnanather, J.T., Left planum temporale cortical thickness variation in schizophrenia. *Human Brain Mapping*, Florence, 2006.
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