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Associate Research Professor,  
Center for Imaging Science and Institute for Computational Medicine,  
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**PROFESSIONALEXPERIENCE**

January 2014 – present Associate Research Professor  
Center for Imaging Science and Institute for Computational Medicine, Dept. of Biomedical Engineering,  
Johns Hopkins University, Baltimore, MD.

February 2002 – December 2013 Assistant Research Professor  
Center for Imaging Science, Dept. of Biomedical Engineering  
Johns Hopkins University, Baltimore, MD.

February 2006 – December 2013 Assistant Research Professor  
Institute for Computational Medicine  
Johns Hopkins University, Baltimore, MD.

August 2005 Visiting Scientist  
Institute of Fundamental Science  
Massey University, Palmerston North, New Zealand.

August 2001 – present Staff Scientist  
F.M. Kirby Functional Imaging Research Center  
Kennedy Krieger Institute, Baltimore, MD.

September 1998 – January 2002 Research Associate  
Center for Imaging Science  
Johns Hopkins University, Baltimore, MD.

October 1994 – August 1998 Postdoctoral Fellow (Preceptor: AS Popel)  
Dept. of Biomedical Engineering,  
Johns Hopkins University School of Medicine, Baltimore, MD.

October 1991 – September 1994 Postdoctoral Fellow (Preceptor: WE Brownell)  
Dept of Otolaryngology -- Head & Neck Surgery  
Johns Hopkins University School of Medicine  
Baltimore, MD.

December 1992 – December 2001 Visiting Scientist  
Dept. of Mathematics  
City University of London.

July 1991 Visiting Scientist  
Dept. of Mechanical Engineering  
University of Sydney, Australia.

August 1990  
 Dept. of Mechanical Engineering  
 Clarkson University, Potsdam, NY.

Visiting Scientist

October 1989 – September 1991  
 Daniels) Dept. of Mathematics  
 City University of London.

Postdoctoral Fellow (Preceptor: PG

### **EDUCATION**

1989 D.Phil. Mathematical Sciences, University of Oxford  
 -Advisors: J.S. Rollett and K.W. Morton  
 -Thesis: Numerical Analysis of Turbulent Flows  
 1985 B.Sc. Mathematics, University College London

### **AWARDS AND RECOGNITIONS**

2023 **Johns Hopkins University Diversity Leadership Council Award (for Whiting School of Engineering)**  
 2022 Fellow, American Institute for Medical and Biological Engineering  
 2021 Inductee, The Susan M. Daniels Disability Mentoring Hall of Fame  
 2020 Fellow, Institute of Mathematics and Its Applications, United Kingdom  
 2020 Patron, Deaf Education is Listening and Talking (DELTA), United Kingdom  
 2017 Johns Hopkins University Provost's Prize for Faculty Excellence in Diversity – Honorable Mention  
 2015 Outstanding leadership in the field of listening and spoken language, Alexander Graham Bell Association for the Deaf and Hard of Hearing  
 2015 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring FY 2012  
 2013 Speech Day Guest of Honour, Mary Hare School, United Kingdom  
 2012 Farrington Daniels Award for Best Dosimetry Paper in "Medical Physics"  
 1994 NSF/University of California Program in Mathematics and Molecular Biology Postdoctoral Fellow  
 1991 Royal Society of London – Australian Academy of Sciences Postdoctoral Fellow.

### **PROFESSIONAL MEMBERSHIPS**

2021—present American Association for Advancement of Science  
 2020—present Institute of Mathematics and Its Applications, United Kingdom  
 2003—present Society for Neuroscience  
 2003—present Organization for Human Brain Mapping  
 1993—present Association for Research in Otolaryngology  
 1992—present Society for Industrial and Applied Mathematics  
 1992—present American Mathematical Society

### **PUBLISHED PEER-REVIEWED RESEARCH ARTICLES**

Note: CV author in Bold; Trainees are underlined, \* indicates co-first, § indicates co-corresponding (875 papers; **top 10 cited 1194 times**; H-index 35)

1. Liu C-F, Younes L, Tong X, Hinkle JT, Wang M, Phatak S, Xu X, Bu X, Looi V, Bang J, Tabrizi S, Scahill R, Paulsen J, Georgiou- Karistianis N, Faria AV, Miller MI, **Ratnanather JT**, Ross CA. Longitudinal Imaging Highlights Preferential Basal Ganglia Circuit Atrophy in Huntington's Disease. Brain. Comms
2. Hu B, Younes L, Bu X, Liu C-F, **Ratnanather JT**, Paulsen J, Georgiou-Karistianis N, Miller MI, Ross CA, Faria AV. (2023) Mixed longitudinal and cross-sectional analyses of deep gray matter and white matter using diffusion weighted images in premanifest and manifest Huntington's Disease. NeuroImage: Clinical. 39: 103493.
3. Padova D, **Ratnanather JT**, Xue Q-L, Resnick SM, Agrawal Y. (2022) Linking vestibular function and sub-cortical grey matter volume changes in a longitudinal study of aging adults. ApertureNeuro <https://apertureneuro.pub.cloud68.co/articles/39/>.
4. Hill C, Deville C Jr, Kiess A, Narang A, **Ratnanather JT**, Bienstick J, Brinckerhoff L, Hodukavich A,

- Anderson R, Sara A, DeWeese T, Viswanathan A, Page B. (2022) Establishing a Deaf and American Sign Language Inclusive Residency Training Program. *Academic Medicine*, 97,357-363.
5. **Ratnanather JT**, Wang LC, Bae SH, O'Neill ER, Sagi E, Tward DJ. (2022) Visualization of Speech Perception Analysis via Phoneme Alignment: a pilot study. *Front Neurol*. 2021; 12: 724800.
  6. Huyck JJ, Anbuhl KL, Buran BN, Adler HJ, Atcherson SR, Cakmak O, Dwyer RT, Eddolls M, El May F, Fraenzer J-T, Funkhouser R, Gagliardini M, Gallun FJ, Goldsworthy RL, Gouin S, Heng J, Hight AE, Jawadi Z, Kovacic D, Kumar R, Kumar S, Lim S, Mo C, Nolan LS, Parbery-Clark A, Pisano DV, Rao VR, Raphael RM, Reiss LAJ, Spencer NJ, Tang S, Tejani V, Tran ED, Valli M, Watkins G, Wayne RV, Wheeler LR, White SL, Wong V, Yuk MC, **Ratnanather JT** and Steyger PS. (2021) Supporting Equity and Inclusion of Deaf and Hard-Of-Hearing Individuals in Professional Organizations. *Frontiers in Education*.
  7. Takanayagi Y, Kulason S, Sasabayashi D, Takahashi T, Katagiri N, Sakuma A, Ohmuro N, Katsura M, Nakamura M, Kido M, Furuichi A, Nishikawa Y, Noguchi K, Matsumoto K, Mizuno M, **Ratnanather JT**, Suzuki, M. (2021) Volume reduction of the dorsal lateral prefrontal cortex in individuals with an at-risk mental state who later develop frank psychosis. *Cereb. Cortex*.
  8. Kulason S, **Ratnanather JT**, Miller MI, Kamath V, Hua J, Yang K, Ma M, Ishizuka K, Sawa A. (2022) A comparative neuroimaging perspective of olfaction and higher-order olfactory processing: on health and disease. *Seminars in Cell & Developmental Biology* 129, 22-30
  9. **Ratnanather JT**, Bhattacharya R, Heston M, Song J-E, Fernandez L, Lim H-S, Lee S-W, Yoo S, Bae SB, Tam E, Lam I, Jeom HW, Chang S-A, Koo J-W. (2021) Speech Banana: a mobile and web application platform for auditory training. *JMIR mHealth and uHealth*. 9(3), p.e20890
  10. Manno III FAM, Rodríguez-Cruces R, Kumar R, Shu Y, **Ratnanather JT**, Lau C. (2021) Hearing loss impacts gray and white matter across the lifespan: systematic review, meta-analysis and meta-regression. *NeuroImage*, 231, p.117826..
  11. Tzovara A, Amarreh I, Borghesani V, Chakravarty M, DuPre E, Grefkes C, Haugg A, Jollans L, Lee H-W, Newman SD, Olsen RK, **Ratnanather JT**, Rippon G, Uddin LQ, Bringas Vega ML, Veldsman M, White T, Badhwar A. (2021) Embracing diversity and inclusivity in an academic setting: Insights from the Organization for Human Brain Mapping. *Neuroimage* 229 (2021): 117742.
  12. Athey T, Ceritoglu C, Tward DJ, Kutten KS, DePaulo JR, Glazer K, Goes FS, Kelsoe JR, Mondimore F, Nievergelt CM, Rootes-Murdy K, Zandi PP, **Ratnanather JT**, Mahon PB. (2021) A 7 Tesla Amygdalar-Hippocampal Shape Analysis of Lithium Response in Bipolar Disorder. *Frontiers in Psychiatry*, 12, 99.
  13. Takanayagi Y, Kulason S, Sasabayashi D, Takahashi T, Katagiri N, Sakuma A, Ohmuro N, Katsura M, Nishiyama S, Nakamura M, Kido M, Furuichi A, Noguchi K, Matsumoto K, Mizuno M, **Ratnanather JT**, Suzuki, M. (2020) Structural MRI study of the planum temporale in individuals with an at-risk mental state using labeled cortical distance mapping. *Frontiers in psychiatry* (2020): 1303.
  14. Jacob AJ, Tward DJ, Resnick SM, Smith P, Lopez C, Rebello E, **Ratnanather JT**, Agrawal Y. (2020) Vestibular function and cortical and sub-cortical alterations in an aging population. *Heliyon*. 6:e04728
  15. Umesh A, Kutten KS, Hogan PS, **Ratnanather JT**, Chib VS. (2020) Motor Cortical Thickness and the Subjective Valuation of Physical Effort in Humans. *J. Neurophysiol*. 123:2373-2381.
  16. Dhir B, Kutten KS, Li M, Faria AV, Younes L, **Ratnanather JT**. (2020) Visualising the topography of the acoustic radiation in clinical diffusion tensor imaging scans. *Neuroradiology*. 62:1157-1167.
  17. **Ratnanather JT** (2019) Structural neuroimaging of the altered brain stemming from pediatric and adolescent hearing loss – Scientific and clinical challenges. *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*. 12:e1469. 10.1002/wsbm.1469
  18. Liu C-F, Faria AV, Padhy S, Ramachandran S, Wang V, Efimov A, Bernal A, Shi L, Vaillant M, **Ratnanather JT**, Caffo B, Albert M, Miller MI. (2019) Using Deep Siamese Neural Networks for

- Detection of Brain Asymmetries Associated with Alzheimer's Disease and Mild Cognitive Impairment. *Magnetic Resonance in Medicine*. <https://doi.org/10.1016/j.mri.2019.07.003>
19. Tang X, Ross CA, Johnson H, Paulsen JS, Younes L, Albin RL, **Ratnanather JT**, Miller MI. Regional subcortical shape analysis in premanifest Huntington's disease. *Hum. Brain Mapp.* 2019. 40:1419-1433.
  20. Kulason S, Tward DJ, Brown T, Sicat CS, Liu CF, **Ratnanather JT**, Younes L, Bakker A, Gallagher M, Albert M, Miller MI, ADNI. Cortical thickness atrophy in the transentorhinal cortex in mild cognitive impairment. *Neuroimaging Clinical.* 2019. 21:101617
  21. Kamil RJ, Jacob A, **Ratnanather JT**, Resnick SM, Agrawal Y. Vestibular function and hippocampal volume in the Baltimore Longitudinal Study of Aging (BLSA). *Otol. Neurotol.* 2018. 39:765-771.
  22. Takayanagi Y, Kulason S, Sasabayashi D, Takahashi T, Katagiri N, Sakuma A, Obara C, Nakamura M, Kido M, Furuichi A, Nishikawa Y, Noguchi K, Matsumoto K, Mizuno M, **Ratnanather JT**, Suzuki M. Reduced thickness of the anterior cingulate cortex in individuals with an at-risk mental state who later develop psychosis. *Schizophrenia Bulletin.* 2017. 43:907-913
  23. Ceyhan E, Nishino T, Botteron KN, Miller MI, **Ratnanather JT**. Analysis of Cortical Morphometric Variability Using Labeled Cortical Distance Maps. 2017. *Statistics and its Interface.* 10:313-341.
  24. Faria AV, **Ratnanather JT**, Tward DJ, Lee DS, van den Noort F, Brown T, Ross CA, Johnson H, Paulsen JS, Younes L, Miller MI, PREDICT-HD Investigators and Coordinators of the Huntington Study Group. Linking white matter and deep gray matter alterations in premanifest Huntington's Disease. *Neuroimage Clinical* 2016. 11:450-460.
  25. Segars WP, Norris H, Sturgeon G, Zhang Y, Bond J, Minhas A, Tward D, **Ratnanather JT**, Miller MI, Frush D, Samei E. The development of a population of 4D pediatric XCAT phantoms for imaging research and optimization. 2015. *Medical Physics.* 42:4719
  26. Miller MI, **Ratnanather JT**, Tward DJ, Brown T, Lee DS, Ketcha M, Mori K, Wang M-C, Mori S, Albert MS, Younes L. Network Neurodegeneration in Alzheimer's Disease via MRI based Shape Diffeomorphometry and High Field Atlasing. 2015. *Front. Bioengng. Biotech.* 3:54.
  27. Marrus N, Belden A, Nishino T, Handler T, **Ratnanather JT**, Miller M, Barch D, Luby J, Kelly Botteron. Ventromedial Prefrontal Cortex Thinning in Preschool-onset Depression. 2015. *J. Affective Disorders.* 180:79-86.
  28. Mahon PB, Lee DS, Trinh H, Tward D, Miller MI, Younes L, Barta PE, **Ratnanather JT**. Morphometry of the amygdala in schizophrenia and psychotic bipolar disorder. 2015. *Schizophrenia Research.* 164:199-202.
  29. Soldan A, Pettigrew C, Lu Y, Wang M-C, Selnes O, Albert M, Brown T, **Ratnanather JT**, Younes L, Miller MI, BIOCARD Research Team. Relationship of medial temporal lobe atrophy, APOE genotype, and cognitive reserve in preclinical Alzheimer's disease. 2015. *Hum. Brain Mapping.* 36:2826-41.
  30. **Ratnanather JT**, Cebon S, Ceyhan E, Postell E, Poynton CB, Pisano DV, Crocker B, Honeycutt NA, Mahon PB, Barta PE. Cortical thickness of superior temporal gyrus and planum temporale in schizophrenia and psychotic bipolar disorder. *Frontiers in Psychiatry.* 2014. <http://dx.doi.org/10.3389/fpsy.2014.00094>
  31. Miller MI, Younes L, **Ratnanather JT**, Brown T, Trinh H, Lee DS, Tward DJ, Mahon P, Mori S, Albert M, BIOCARD Research Team. Amygdalar atrophy in preclinical and symptomatic AD based on diffeomorphic morphometry: The BIOCARD Cohort. *Neurobiology of Aging.* 2014. 36:S3-10.
  32. Norris H, Bond J, Zhang Y, Sturgeon G, Frush J, Tward D, Ratnanather T, Miller M, Samei E, Segars P. A set of 4D Pediatric XCAT Reference Phantoms for Multimodality Research. *Medical Physics.* 2014. 41:033701. <http://dx.doi.org/10.1118/1.4864238>
  33. Li M, **Ratnanather JT**, Miller MI, Mori S. Knowledge-based automated reconstruction of human brain white matter tracts using a pathfinding approach with dynamic programming. *NeuroImage.* 2014. 88:271-281. <http://dx.doi.org/10.1016/j.neuroimage.2013.10.011>

34. Ceyhan E, Nishino T, Alexopolous J, Todd RD, Miller MI, Botteron KN, **Ratnanather JT**. Censoring distances based in labeled cortical distance maps in cortical morphometry. *Frontiers in Neurology*. 2013. <http://dx.doi.org/10.3389%2Ffnneur.2013.00155>
35. Miller MI, Younes L, **Ratnanather JT**, Brown T, Trinh H, Postell E, Lee DS, Wang M-C, Mori S, O'Brien R, Albert M, BIOCARD Research Team. The Diffeomorphometry of Temporal Lobe Structures in Preclinical Alzheimer's Disease. *NeuroImage: Clinical*. 2013. 3:352-360. <http://dx.doi.org/10.1016/j.nicl.2013.09.001>
36. **Ratnanather JT**, Poynton CB, Pisano DV, Crocker B, Postell E, Cebon S, Ceyhan E, Honeycutt, NA, Mahon PB, Barta PE. Morphometry of superior temporal gyrus and planum temporale in schizophrenia and psychotic bipolar disorder. *Schizophrenia Research*. 150: 476-483. <http://dx.doi.org/10.1016/j.schres.2013.08.014>
37. Ceritoglu C, Tang X, Chow M, Hadijabadi D, Shah D, Brown T, Burhanullah MH, Trinh H, Hsu JT, Ament KA, Crocetti D, Mori S, Mostofsky SH, Yantis S, Miller MI, **Ratnanather JT**. Computational Analysis of LDDMM for Brain Mapping. *Frontiers in Neurology*. 2013. 7:00151. <http://dx.doi.org/10.3389/fnins.2013.00151>
38. **Ratnanather JT**, Lal RM, An M, Poynton CB, Li M, Jiang H, Oishi K, Selemon L, Mori S, Miller MI. Cortico-cortical, Cortico-striatal and cortico-thalamic white matter fiber tracts generated in the macaque brain via dynamic programming. *Brain Connectivity*. 3: 475-490. <http://dx.doi.org/10.1089/brain.2013.0143>
39. Takayanagi M, Wentz J, Takayanagi Y, Schretlen DJ, Ceyhan E, Wang L, Suzuki M, Sawa A, Barta PE, **Ratnanather JT**, Cascella NG. Reduced anterior cingulate gray matter volume and thickness in subjects with deficit schizophrenia. *Schizophrenia Research*. 2013. 150:484-490. <http://dx.doi.org/10.1016/j.schres.2013.07.036>
40. **Ratnanather JT**, Kim JH, Zhang S, Davis AM, Lucas SK. Algorithm 935: IIBPF, a Matlab toolbox for infinite integrals of a product of two Bessel functions. *ACM Transactions in Mathematical Software*. 40:14. <https://doi.org/10.1145/2508435>.
41. Davis AMJ, Kim JH, Gunter G, **Ratnanather JT**§. The Stokesian flow field of an oscillatory submerged viscous fluid jet impinging on a planar wall. *Proc. Roy. Soc. Lond. A*. 2013. 469: 20130282. <http://dx.doi.org/10.1098/rspa.2013.028>
42. Segars WP, Bond J, Frush J, Hon S, Eckersley C, Williams CH, Feng J, Tward DJ, **Ratnanather JT**, Miller MI, Frush D, Samei E, Population of anatomically variable 4D XCAT adult phantoms for imaging research and optimization, *Medical Physics*, 40:043701 (2013); <http://dx.doi.org/10.1118/1.4794178>
43. Younes L, **Ratnanather JT**, Brown T, Aylward E, Nopoulos P, Johnson H, Magnotta VA, Paulsen JS, Margolis RL, Albin RL, Miller MI, Ross CA, PREDICT-HD Investigators and Coordinators of the Huntington Study Group. Regionally selective atrophy of subcortical structures in prodromal HD as revealed by statistical shape analysis. *Human Brain Mapping*. <http://dx.doi.org/10.1002/hbm.22214>. 35:792-809.
44. Suzuki H, Botteron KN, Luby JL, Belden AC, Gaffrey MS, Babb CM, Nishino T, Miller MI, **Ratnanather JT**, Barch DM. Structural-functional correlations between the hippocampal volume and cortico- limbic emotional responses in depressed children. *Cognitive, Affective and Behavioral Neuroscience*. 2012. 13: 135-151. <http://dx.doi.org/10.3758/s13415-012-0121-y>
45. Selemon LD, Ceritoglu C, **Ratnanather JT**, Wang L, Harms MP, Alridge K, Begovic A, Csernansky JG, Miller MI, Rakic, P. Distinct abnormalities of the primate prefrontal cortex caused by ionizing radiation in early or mid gestation. *J. Comp. Neurol*. 2013. 521:1040-1053. <http://dx.doi.org/10.1002/cne.23217>
46. Davis AMJ, Kim JH, Ceritoglu C, **Ratnanather JT**. A Stokesian analysis of a submerged viscous jet impinging on a planar wall. *J. Fluid Mech*. 2012. 712: 531-551. <http://dx.doi.org/10.1017/jfm.2012.435>
47. Li X, Samei E, Williams CH, Segars WP, Tward DJ, Miller MI, **Ratnanather JT**, Paulsen EK, Frush DP. Effects of protocol and obesity on dose conversion factors in adult body CT. *Medical Physics*. 2012. 39:6550-6571. <http://dx.doi.org/10.1118/1.4754584> (Farrington Daniels Award for best paper)
48. Mahon P, Eldridge H, Crocker B, Notes L, Gindes H, Postell E, King S, Potash JB, **Ratnanather JT**, Barta PE. An MRI Study of Amygdala in Schizophrenia and Psychotic Bipolar Disorder. *Schizophrenia*

Research. 2012. 138:188-191. <http://dx.doi.org/10.1016/j.schres.2012.04.005>

49. Steinert-Threlkeld S, Ardekani S, Mejino JV, Detwiler LT, Brinkley JF, Halle M, Kikinis R, Winslow RL, Miller MI, **Ratnanather JT**. Ontological Labels for Automated Location of Anatomical Shape Differences. *J. Biomedical Informatics*. 2012. 45:522-557. <http://dx.doi.org/10.1016/j.jbi.2012.02.013>.
50. Tward DJ, Ceritoglu C, Kolasny A, Sturgeon G, Segars WP, Miller MI, **Ratnanather JT**. Patient Specific Dosimetry Phantoms Using Multi-Channel LDDMM of the Whole Body. *Int. J. Biomed. Imag.* 2011; 2011:481064.
51. Ceyhan E, Beg MF, Ceritoglu C, Wang L, Morris JC, Csernansky JG, Miller MI, **Ratnanather JT**. Metric distances between hippocampal shapes indicate different rates of change over time in nondemented and demented subjects. *Curr. Alzh. Research*. 2011. 9: 972-981.
52. Ceyhan E, Beg MF, Ceritoglu C, Wang L, Morris JC, Csernansky JG, Miller MI, **Ratnanather JT**. Quantization and analysis of hippocampal morphometric changes due to dementia of Alzheimer type using metric distances based on large deformation diffeomorphic metric mapping. *Comp. Med. Imag. Graph.* 2011. 35:275-93.
53. Ceyhan E, Hosakere M, Nishino T, Alexopolous J, Todd RD, Miller MI, Botteron KN, **Ratnanather JT**. Statistical Analysis of Cortical Thickness Using Pooled Distances from Labeled Cortical Distance Maps. *J. Math. Image Vision*. 2011. 40:20-35.
54. Ceritoglu C, Wang L, Selemon LD, Csernansky JG, Miller MI, **Ratnanather JT**, Large deformation diffeomorphic metric mapping registration of in-vivo MR images and reconstructed 3D images of histological section images. *Frontiers in Neurosciences*, <http://dx.doi.org/10.3389/fnhum.2010.00043>, 2010.
55. Arrate F, **Ratnanather JT**, Younes L. Diffeomorphic Active Contours. *SIAM J. Imaging Science*. <http://dx.doi.org/10.1137/090766401>, 2010.
56. Harms MP, Wang L, Campanella C, Aldridge K, Moffitt AJ, Kuelper J, **Ratnanather JT**, Miller MI, Barch DM, Csernansky JG. Structural abnormalities in gyri of the prefrontal cortex in individuals with schizophrenia and their non-psychotic siblings. *Brit. J. Psychiatry*. 196:150-157, 2010.
57. Steinert-Threlkeld S, **Ratnanather JT**. Open standards, web-based mathlets: making interactive tutorials using the html5 canvas element. *Loci: a journal of online mathematics*. <http://mathdl.maa.org/mathDL/55/?pa=content&sa=viewDocument&nodeId=3340>, 2009.
58. Fawkes WG, **Ratnanather JT**. Music at the Mary Hare Grammar School for the Deaf from 1975 to 1988. *Visions of Research in Music Education*. Vol. 14. Retrieved from <http://www-usr.rider.edu/~vrme>, 2009.
59. Penumetcha N, Kabadi S, Jedynek B, Walcutt C, Gado MH, Wang L, **Ratnanather JT**. Feasibility of geometric-intensity based semi-automated delineation of the tentorium cerebelli from MRI scans. *J. Neuroimaging*, 2009.
60. Qiu A, Wang L, Younes L, Harms MP, **Ratnanather JT**, Miller MI, Csernansky JG. Neuroanatomical asymmetry patterns in individuals with schizophrenia and their non-psychotic siblings. *NeuroImage*, 47: 1221-1229, 2009.
61. Miller MI, Priebe C, Qiu A, Kolasny A, Brown T, Park Y, **Ratnanather JT**, Busa E, Jovicich J, Yu P, Dickerson B, Buckner RL and Morphometry BIRN. Collaborative Computational Anatomy: An MRI Morphometry Study of the Human Brain via Diffeomorphic Metric Mapping. *Human Brain Mapping*, 30:2132-2141, 2009.
62. Lee N, Penumetcha N, Priebe CE, Miller MI, **Ratnanather JT**. Validation of Alternating Kernel Mixture Method: Application to Segmentation of Cortical and Sub-cortical Brain Structures. *J. Biomedicine and Biotechnology*, <http://dx.doi.org/10.1155/2008/346129>, 2008.
63. Calabrese DR, Wang L, Harms MP, **Ratnanather JT**, Miller MI, Csernansky JG. Cingulate gyrus neuroanatomy in schizophrenia subjects and their non-psychotic siblings. *Schizophrenia Research* 104:68-70, 2008.
64. Lee N, Priebe CE, **Ratnanather JT**, Miller MI. 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, 2007.
65. Zhang S, Younes L, Zweck J, **Ratnanather JT**. Diffeomorphic Surface Flow: a novel method of surface evolution. *SIAM J. App. Math.* 68:806-824, 2008.

66. Penumetcha N, Jedynak B, Hosakere M, Ceyhan E, Botteron KN, **Ratnanather JT**. Segmentation of arteries in MPRAGE images of the ventral medial prefrontal cortex. *Comp. Med. Imag. Graph* 32:36- 43, 2008.
67. Qiu A, Vaillant M, Barta P, **Ratnanather JT**, Miller MI. Surface-Based Gaussian Random Field Model with Application to Cortical Thickness Variation of Left Planum Temporale in Schizophrenia and Bipolar Disorder. *Hum. Brain Mapp.*, 29: 973-985, 2007 (front cover).
68. Qiu A, Younes L, Wang L, **Ratnanather JT**, Gillespie SK, Kaplan G, Csernansky JG, Miller MI, Combining Anatomical Manifold Information via Diffeomorphic Metric Mappings for Studying Cortical Thinning of the Cingulate Gyrus in Schizophrenia. *Neuroimage*, 37,821-833, 2007.
69. Munn MA, Alexopoulos J, Nishino T, Babb CM, Flake LA, Singer T, **Ratnanather JT**, Todd RD, Miller MI, Botteron KN. Amygdala volume analysis in female twins with major depression. *Biological Psychiatry*, 62,415-422, 2007.
70. Wang L, Hosakere M, Trein JCL, **Ratnanather JT**, Barch, DM, Thompson PA, Qui A, Gado M, Miller MI, Csernansky JG. Abnormalities of Cingulate Gyrus Neuroanatomy in Schizophrenia. *Schizophrenia Res.*, 93, 66-78, 2007.
71. Zhi M, **Ratnanather JT**, Ceyhan E, Popel AS, Brownell WE. Hypotonic swelling of salicylate treated cochlear outer hair cells. *Hearing Research*, 228, 95-104, 2007.
72. Wang L, Beg MF, **Ratnanather JT**, Ceritoglu C, Younes L, Morris JC, Csernansky JG, Miller MI. Large Deformation Diffeomorphism and Momentum Based Hippocampal shape Discrimination in Dementia of the Alzheimer Type. *IEEE Trans Med Imaging*. 26, 462-470, 2007.
73. Spector AA, Grosh K, **Ratnanather JT**, Deo N, Raphael RM. Electromechanical models of the outer hair cell composite membrane. *J. Membrane Biology*. 209:135-152. 2006.
74. Priebe CE, Miller MI, **Ratnanather JT**. Segmenting Magnetic Resonance Images via Hierarchical Mixture Modelling. *Computational Statistics and Data Analysis*. *Computational Statistics & Data Analysis*, 50, 551 – 567. 2006
75. **Ratnanather JT**, Wang L, Nebel MB, Hosakere M, Han X, Csernansky JG, Miller MI. Generation and analysis of the cingulate gyrus cortical surface in healthy and schizophrenia subjects. *Psychiatry Research: Neuroimaging*, 132, 53-68. 2004.
76. Holm DD, **Ratnanather JT**, Trouvé A and Younes L. Soliton Dynamics in Computational Anatomy. *NeuroImage*. 23, S170-S178. 2004.
77. Csernansky JG, Wang L, Joshi SC, **Ratnanather JT**, Miller MI. 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.
78. Miller MI, Hosakere M, Barker AR, Priebe CE, Lee N, **Ratnanather JT**, Wang L, Gado M, Morris JC, Csernansky JG. 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.
79. **Ratnanather JT**, Honeycutt NA, Lee NG, Morris HM, Dziorny AC, Hurdal MK, Barta PE, Pearlson GD, Miller MI. Dynamic Programming generation of boundaries of local coordinate submanifolds in the neocortex: application to the Planum Temporale. *NeuroImage*, 20, 359-377, 2003.
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81. Daniels PG, **Ratnanather JT**, On the thermal field of a separating wall jet. *J. Engng. Math.*, 40, 372-382, 2000.
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### **CONFERENCE PAPERS**

1. Kutten KS, Charon N, Miller MI, **Ratnanather JT**, Matelsky J, Baden AD, Lillaney K, Deisseroth K, Ye L, Vogelstein JT. A Large Deformation Diffeomorphic Approach to Registration of CLARITY images via Mutual Information. MICCAI 2017, 283-290.
2. Kutten KS, Eacker SM, Dawson VL, Dawson TM, **Ratnanather JT**, Miller MI. "An image registration pipeline for analysis of transsynaptic tracing in mice". Proceedings of SPIE 2016;9788, 2016. <http://dx.doi.org/10.1117/12.2216233>
3. Sturgeon GM, Tward DJ, Ketcha M, **Ratnanather JT**, Miller MI, Park S, Segars WP, Lo JY. "Eigenbreasts for statistical breast phantoms", Proceedings of SPIE 2016;9783, 2016. <http://dx.doi.org/10.1117/12.2216398>
4. Tward D, Jain S, **Ratnanather T**, Younes L, Miller M. OpenCL acceleration of Large Deformation Diffeomorphic Metric Mapping. 2014. Proceedings of 7th International Workshop on High Performance Computing for Biomedical Image Analysis (HPC-MICCAI), Boston, MA.
5. Jain S, Tward D, Lee D, Kolasny A, Brown T, **Ratnanather T**, Younes L, Miller M. Computational Anatomy Gateway: Leveraging XSEDE Computational Resources for Shape Analysis. Proceedings of the 2014 Annual Conference on Extreme Science and Engineering Discovery Environment. 54:1-54:6
6. **Ratnanather JT**, Limb CJ. 2014. "Factors behind the "cleaning" of the auditory pathway in late implantation of prelingual oral deaf adults". Proceedings of ISAAR 2013: Auditory Plasticity – Listening with the Brain, Dau T, Santurette S, Dalsgaard JC, Tranebjaerg L, Andersen T, Poulsen T. (Eds), pp. 247-254, The Danavox Jubilee Foundation, Denmark.
7. Norris H, Zhang Y, Frush J, Sturgeon GM, Minhas A, Tward DJ, **Ratnanather JT**, Miller MI, Samei E, Segars WP. 2014. The development of a population of 4D pediatric XCAT phantoms for CT imaging research and optimization. Proceedings Volume 9033, Medical Imaging 2014: Physics of Medical Imaging; 90331V (2014) <https://doi.org/10.1117/12.2043777>.
8. Miller MI, Younes L, **Ratnanather JT**, Brown T, Reigel T, Trinh H, Tang X, Barker P, Mori S, Albert M. 2012. "Amygdala Atrophy in MCI/Alzheimer's Disease in the BIOCARD cohort based on Diffeomorphic Morphometry". MICCAI 2012 Workshop on Novel Imaging Biomarkers for Alzheimer's Disease and Related Disorders (NIBAD'12)", p. 155-166. Wang, L, Yushkevich P and Ourselin S (Eds.).
9. Tang X, Mori S, **Ratnanather T**, Miller MI. "Segmentation of Hippocampus and Amygdala Using Multi-channel Landmark Large Deformation Diffeomorphic Metric Mapping". Proc. 38th Annual NorthEast Bioengineering Conference 2012. <http://dx.doi.org/10.1109/NEBC.2012.6207140>
10. Bond J, Frish C, Eckersley C, Williams CH, Tward DJ, **Ratnanather JT**, Miller MI, Samei E, Segars WP. "Series of 4D adult XCAT phantoms for imaging research and dosimetry". Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2012;8313, 2012. <http://dx.doi.org/10.1117/12.911676>
11. Steinert-Threlkeld S, Ardekani S, Mejino JV, Detwiler LT, Brinkley JF, Halle M, Kikinis R, Winslow RL, Miller MI, **Ratnanather JT**. "Ontological Labels for Automated Location of Left Ventricular Remodeling". 2011 Fifth IEEE International Conference on Semantic Computing, Palo Alto, CA. p. 572-573.
12. Tward DJ, Ceritoglu C, Sturgeon G, Segars WP, Miller MI, **Ratnanather JT**. "Generating Patient-Specific Dosimetry Phantoms with Whole-Body Diffeomorphic Image Registration". Proc. 37th Annual NorthEast Bioengineering Conference. 2011. <http://dx.doi.org/10.1109/NEBC.2011.5778717>
13. Winslow R, Saltz J, Foster I, Carr JJ, Ge Y, Miller M, Younes L, Geman D, Granite S, Kurc T, Post A, Madduri R, **Ratnanather T**, Larkin J, Ardekani S, Brown T, Kolasny A, Reynolds K, Shipway M. "The CardioVascular Research Grid (CVRG) Project". 2011 AMIA Summit on Translational Bioinformatics. p. 77–81
14. Segars WP, Sturgeon GM, Tward DJ, **Ratnanather JT**, Miller MI, Tsui BMW. "The new XACT series of digital phantoms for multi-modality imaging". Nuclear Science Symposium Conference Record (NSS/MIC), 2010 IEEE. 2010:2392-2395

15. Allasonnière S, Kuhn E, **Ratnanather JT** and Trouvé A. Consistent Atlas Estimation on BME Template Model: Applications to 3D Biomedical Images. PMMIA 2009: Probabilistic Models for Medical Image Analysis. London, 2009.
16. Segars WP, Sturgeon G, Li X, Cheng L, Ceritoglu C, **Ratnanather JT**, Miller MI, Tsui BMW, Frish D, Samei E. Patient specific computerized phantoms to estimate dose in pediatric CT. Medical Imaging 2009: Physics of Medical Imaging. Edited by Samei E and Hsieh J. Proceedings of the SPIE, Volume 7258, pp. 72580H-72580H-9, 2009.
17. Lee N, Penumetcha N, Priebe CE, **Ratnanather JT**, Miller MI. Validation of Alternating Kernel Mixture Method Based Segmentation of the Human Brain. Proc. Frontiers in the Convergence of Bioscience and Information Technology, pp. 477-481, 2007.
18. Ceyhan E, Fong L, Tasky TN, Hurdal MK, Beg MF, Martone ME, **Ratnanather JT**. Type-Specific Analysis of Morphometry of Dendrite Spines of Mice. 5th Int. Symp. Image Signal Proc. Analysis, ISPA 2007.
19. Ceyhan E, Hosakere M, Nishino T, Alexopolous J, Todd RD, **Ratnanather JT**, Botteron, K.N., Miller, M.I. Statistical Analysis of Morphometric Measures Based on Labeled Cortical Distance Maps. 5th Int. Symp. Image and Signal Processing and Analysis, ISPA 2007, 13-18.
20. Ceyhan E, Ölken RÇ, Fong L, Tasky TN, Hurdal MK, Beg MF, Martone ME, **Ratnanather JT**. Modeling Metric Distances of Dendrite Spines of Mice Based on Morphometric Measures. Int. Symp on Health Informatics and Bioinformatics, 2007.
21. **Ratnanather JT**. Computational Anatomy of the Auditory Cortex: implications for auditory rehabilitation". In "From Cochlea to Cortex: understanding auditory dysfunction" Proceedings of the 4th Research Symposium for Non-Scientists at the International Convention of the Alexander Graham Bell Association for the Deaf and Hard of Hearing, June 2004.
22. **Ratnanather JT**, Priebe CE, Miller MI. Semi-automated segmentation of cortical subvolumes via hierarchical mixture modeling. Medical Imaging 2003: Image Processing. Edited by Sonka, Milan; Fitzpatrick, J. Michael. Proceedings of the SPIE, Volume 5032, pp. 1602-1612, 2003.
23. Popel AS, **Ratnanather JT**, Spector AA, Sit PS, Jerry RA, Brownell WE. Mechanics of the cochlear outer hair cell. Proceedings of the Fourth China-Japan-USA-Singapore Conference on Biomechanics, Taiyuan, Shaxi, China, 1995.
24. Sit PS, **Ratnanather JT**, Popel AS, Brownell WE. Micromechanical properties of the outer hair cell of the inner ear. Proc. 13th Southern Biomedical Engineering Conference, Washington, DC, 1994.
25. Brownell WE, **Ratnanather JT**, Pollice PA, Zhi M, Sit PS. Subsurface cisternal contributions to outer hair cell mechanics and electromotility. Proc. Sendai Symp. 3,111-115, Tohoku University School of Medicine, Sendai, Japan, 1993.
26. **Ratnanather JT**, Rollett JS. A Petrov-Galerkin scheme for incompressible turbulent flows. Proceedings of the 6th International Conference on Finite Element Methods in Australia, Eds. Steven GP, Kelly DW, Mclvor C, University of Sydney, 1991.
27. **Ratnanather JT**, Daniels.PG. Reversed flow calculations of high Prandtl number thermal boundary layer separation. Proceedings of 4th International Symposium on Transport Phenomena in Heat and Mass Transfer (ISTP-IV), Sydney, Australia, Ed. JA Reizes. Elsevier Science Publishers, 1991.9.

#### **BOOK CHAPTERS**

1. **Ratnanather JT**, Liu CF, Miller MI (2023). Shape Diffeomorphometry of Brain Structures in Neurodegeneration and Neurodevelopment. In: Thakor, NV. (ed) Handbook of Neuroengineering. Springer, Singapore. [https://doi.org/10.1007/978-981-15-2848-4\\_85-1](https://doi.org/10.1007/978-981-15-2848-4_85-1)
2. Younes L, **Kutten KS**, **Ratnanather JT**. (2023) Normal and Equivolumetric Coordinate Systems for Cortical Areas. In: Breuß, M. (ed) Shape Analysis: Euclidean, Discrete and Algebraic Geometric Methods, Springer. (current version: <https://doi.org/10.48550/arXiv.1911.07999>)
3. **Ratnanather JT**, Arguillière S, Kutten KS, Hubka P, Kral A, Younes L (2019) 3D normal coordinate systems for cortical areas. In "Mathematics of Shapes and Applications" (Lecture Notes Series, Institute of Mathematical Sciences, National University of Singapore), Eds. Kushnarev S, Qiu A & Younes L, pages 167-179.
4. Winslow RL, Helm P, Baumgartner W, Peddi S, **Ratnanather T**, McVeigh E and Miller MI. Imaging-based integrative models of the heart: closing the loop between experiment and simulation. In "In

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Silico' Simulation of Biological Processes: Novartis Foundation Symposium, Volume 247". p. 129-143. Eds. Bock G, Goode JA. 2002.

5. **Ratnanather JT**, Spector AA, Popel AS, Brownell WE. Is the outer hair cell wall viscoelastic? In "Diversity in Auditory Mechanics", Eds. Lewis ER, Long GR, Lyon RF, Narins PM, Steele CR, Hecht-Poinar E. World Scientific, 1997.
6. Brownell WE, **Ratnanather JT**, Popel AS, Zhi M, Sit PS. Labyrinthine lateral walls: cochlear outer hair cell permeability and mechanics. In "Active Hearing", Eds. A. Flock, D. Ottoson, M. Ulfendahl. Elsevier Science Ltd, 1995.
7. **Ratnanather JT**, Brownell WE, Popel AS. The mechanical properties of the cochlear outer hair cell. In "Biophysics of Hair Cell Sensory Systems", Eds. Duifhuis D, Wit H, VanDijk PM, World Scientific Press, 1993.

### **MANUSCRIPTS IN REVISION**

1. Padova D, Faria A, **Ratnanather JT**, So RJ, Zhu S, Agrawal Y. Vestibular Function Predicts Prefrontal and Sensorimotor Cortical Gray Matter Volumes in a Cross-Sectional Study of Healthy, Older Adults. Human Brain Mapping.

### **MANUSCRIPTS IN FIRST REVIEW**

1. N/A.

### **MANUSCRIPTS IN PREPARATION FOR SUBMISSION**

1. Yang Y, Padova D, Faria A, **Ratnanather JT**, Agrawal Y. Vestibular Function is Differentially Associated to White Matter Integrity in Vestibular-Subcortical-Cortical Pathways. Human Brain Mapping.
2. Yuk MC, Padova D, **Ratnanather JT**, Agrawal Y. Investigating subcortical atrophy rates in impaired vs. unimpaired vestibular function. Human Brain Mapping.
3. Padova D, Tward DJ, Davis C, **Ratnanather JT**. Batlas: variational reconstruction of a digital ,three-dimensional atlas of the big brown bat (*Eptesicus fuscus*). Frontiers in Neuroscience.
4. Kutten KS, **Ratnanather JT**. Multi-modal alternating kernel mixture segmentation of histological cortical layers.

### **INVITED TALKS**

1. "Mind that patient, trainee or staff - if he/she cannot hear or speak: Pro-active solutions in clinics, labs and classrooms via auto-captions", OHBM Symposium: "Using technology to enhance diversity and inclusivity in neuroscience and neuroimaging". Montreal (7/23).
2. "Thirty years of scientists and clinicians with hearing loss in NIDCD research areas", NIDCD Council (5/22)
3. "The shape of the deafened auditory cortex". NIDCD DIR Seminar Series (5/22).
4. "Visualization of Speech Perception via Phoneme Alignment", Center for Language and Speech Processing, Johns Hopkins University (5/22)
5. "Longitudinal MR and DT Imaging Datasets to define brain changes and suggest spread of pathology in HD", Neurodegeneration in CAG Triplet Repeat Diseases, from Molecular Pathogenesis to Rational Therapeutics, Gordon Research Conference, Tuscany (6/19).
6. Computational Anatomy of the Deaf Brain", Center for Hearing and Balance, Johns Hopkins University (3/19).
7. "Making Mathematics accessible at colleges and universities", Horizons Seminar Series, Department of Mathematics, Brown University (2/18)
8. "3D normal coordinate systems for the cortex: applications in the deafened cortices in babies, adults and cats", Shape analysis and computational anatomy, Isaac Newton Institute, University of Cambridge (11/17)
9. "Accessibility for Mathematicians with Hearing Loss", Minisymposia, SIAM Annual Meeting, Pittsburgh (7/17).
10. "A cortical columnar normal coordinate system", Workshop on the State of Art Shape Research and Its Applications, Institute of Mathematical Sciences, National University of Singapore (7/16).

11. "Whole body Mapping", Medtronics, Minneapolis (4/16)
12. "The shape of the auditory cortex in deaf adults and babies", Speech Sciences Forum, University College London (6/15).
13. "The shape of the auditory cortex in deaf adults and babies" Distinguished Seminar Series, Institute for Computational Medicine, Johns Hopkins University (4/15).
14. "Computational Anatomy of the Deafened Brain", VIANNA (Institute for AudioNeurotechnology), Hannover, Germany (8/13).
15. "Computational Anatomy of the Deafened Brain", Vollum Institute, Oregon Health and Sciences University, Portland, OR (6/13).
16. "Cortical Layers (and Columns) via EPDiff?", Shape Spaces Retreat, Towson, MD, May 2013.
17. "Is cortical thickness influenced by curvature of the gray/white cortical surface? (or can we use the half-tube formula to predict pediatric cochlear implantation outcomes?)", Shape Spaces Retreat, ENS Cachan, France, May 2012.
18. "Computational Anatomy of the Deafened Brain", Brain and Behavior Laboratory, Dept of Speech, Language and Hearing Sciences, University of Colorado at Boulder (11/11).
19. "Computational Anatomy of the Deafened Brain", Center for Hearing and Communication Research, Karolinska Institute, Stockholm, Sweden (6/11).
20. "Large Deformation Diffeomorphic Co-Registration of Reconstructed Histological and MR Volumes", Children's Hospital of Los Angeles, USC (02/10).
21. "Large Deformation Diffeomorphic Co-Registration of Reconstructed Histological and MR Volumes", Center for Computational Biology, Laboratory Of Neuro-Imaging (LONI), UCLA (11/09).
22. "Applications of the Alternating Kernel Mixture model in Computational Anatomy", Graduate School of Biomedical Engineering, University of New South Wales, Sydney, Australia (9/07).
23. "Neuro-imaging of the Deafened Auditory Cortex: potential applications and challenges", Developing a Listening Ear, Newbury, England (7/07).
24. "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).
25. "Computational Auditory Phrenology: scratching the surface", Mary Hare Grammar School for the Deaf, Newbury, England (6/06)
26. "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).
27. "Computational Anatomy: shape analysis of brain, cortical, cardiac and dendritic structures", New Zealand Institute of Fundamental Sciences, Massey University (8/05).
28. "Salicylate effect on the hydraulic conductivity of the cochlear outer hair cell wall", Auditory Physiology Group, University of Auckland, New Zealand (8/05).
29. "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).
30. "Computational Anatomy: implications for auditory rehabilitation", Bionic Ear Institute, University of Melbourne, Australia (10/03).
31. "Computational Anatomy: implications for auditory rehabilitation", Cochlea Interest Group, University of New South Wales, Sydney, Australia (10/03).
32. "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)
33. Panelist, "Mentoring Women and Minorities", National Partnership in Advanced Computational Infrastructure, All Hands Meeting, San Diego Supercomputer Center. (2/00)
34. "The Ear-Works: the cellular basis of hearing", Colloquium, California State University Northridge. (1/99)
35. "Shake, rattle and roll: the mathematical biology of hearing", Dept. of Mathematics, California State University Northridge. (1/99)
36. "Dancing cochlear outer hair cells: the mathematical biology of hearing", Dept. of Mathematics, Howard University. (4/98)
37. Panelist at "Hear and Now" symposium at Midwinter Meeting of the Association for Research in

- Otolaryngology, St. Petersburg, FL. (2/97)
38. "What they didn't teach us at school? - Fire in the belly", Oxford Brookes University School of Education, Oxford, England. (8/96)
  39. "Is the outer hair cell wall viscoelastic?", Program in Mathematics and Molecular Biology retreat, Napa, CA. (5/96)
  40. "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)
  41. "Making the most of the Sun workstation". Dept. of Mathematics, City University London. (10/91)
  42. "On self induced thermal boundary layer separation". Dept. of Mathematics, University of New South Wales, Sydney, Australia. (7/91)
  43. "Asymptotic modeling of turbulent and thermal boundary layers". Dept. of Mechanical Engineering, Johns Hopkins University, Baltimore, MD. (2/91)
  44. "Numerical analysis of turbulent flows", Dept. of Mathematics, City University London. (2/90)
  45. "Numerical analysis of turbulent flows", Dept. of Mathematics, University College London. (1/90)

### **OTHER TALKS**

1. Co-organizer "Bridging the gap between hearing sciences and audio technologies", ARO Meeting, Baltimore, (2/17)
2. "Neurodegenerative brain diseases in Computational Anatomy", 2nd Symposium on Computational Medicine, Johns Hopkins Hospital (10/13)
3. "Cleaning the auditory pathway after late implantation of congenital profound deafness - a personal journey", kick-off talk at CI-CRASH, University of Wisconsin, Madison (10/13)
4. "Music and Deafness", Workshop at the 31st Midwinter Meeting of the Association for Research in Otolaryngology, Phoenix, AZ (organizer, 2/08).
5. "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)
6. "Computational Anatomy: New Frontiers in Biomedical Imaging" Session co-chair, 2005 Annual Fall Meeting, Biomedical Engineering Society, Baltimore, MD (9/05)
7. "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).
8. "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).
9. Co-chair, Mini-Symposium on "Biomedical Image Analysis and Registration" at 50th SIAM Annual Meeting, Philadelphia, PA. (7/02)
10. "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).

### **INTERVIEWS (Online)**

1. Our Oral History (AG Bell), <https://www.youtube.com/watch?v=DXpuzzvY640>, Sept 2018.
2. PAESMEM Alumni Interview, [https://www.youtube.com/watch?v=lqzL\\_upOTJE](https://www.youtube.com/watch?v=lqzL_upOTJE), March 2017.
3. What if you were born deaf? What if your child was? On Mentoring (AG Bell), [https://www.youtube.com/watch?v=lqzL\\_upOTJE](https://www.youtube.com/watch?v=lqzL_upOTJE), March 2016.

### **ABSTRACTS/POSTER PRESENTATIONS**

1. Perez-Heydrich C, Padova D, Kutten K, Ratnanather JT, Faria A, Agrawal Y. Heschl's Gyrus and Planum Temporale Multi-Atlas for MRICloud. OHBM, Montreal, (7/23).
2. Vania C, Padova D, Ratnanather JT, Agrawal Y. Vestibular Function is Associated with Cortical Thinning of the Entorhinal & Trans-Entorhinal Cortex. OHBM, Montreal, (7/23).
3. Looi V, Ratnanather JT, Ferrara K, Landau B. Hippocampal Body Volume Reduction in Williams Syndrome. OHBM, Montreal, (7/23).
4. Padova D, Yuk MC, Ratnanather JT, Faria A, Agrawal Y. Age-Related Vestibular Loss Is Associated with

- a Changepoint in Entorhinal Cortex Atrophy Rate. OHBM, Montreal, (7/23).
5. Yang Y, Padova D, Faria A, Agrawal A, **Ratnanather JT**. Vestibular Function is Associated With White Matter Structural Integrity Change in Healthy Older Adults. Association for Research in Otolaryngology, (2/23).
  6. Padova D, Faria A, **Ratnanather JT**, So RJ, Zhu S, Agrawal Y. Vestibular function differentially impacts gray matter in the prefrontal and sensorimotor cortices. OHBM Annual Meeting 2022, Glasgow, Scotland, UK.
  7. Padova D, Faria AV, Agrawal Y, **Ratnanather JT**. Vestibular Function Predicts Prefrontal and Sensorimotor Cortical Gray Matter Volumes in a Cross-Sectional Study of Healthy, Older Adults. Association for Research in Otolaryngology, (2/22).
  8. Li Q, Kutten K, Sollmann L, Hubka P, Kral P, **Ratnanather JT**. Mechanical Modeling of Changes in Auditory Cortical Morphology Due to Hearing Loss. Association for Research in Otolaryngology, (2/22).
  9. Padova D, **Ratnanather JT**, Agrawal Y. Linking vestibular function and sub cortical grey matter volume changes in a longitudinal study of aging adults. Human Brain Mapping (Virtual, 06/20).
  10. Hubka P, Sollmann L, Kutten KS, **Ratnanather JT**, Kral A. Functional and Structural Analysis of Cortical Profiles in Feline Primary Auditory Cortex – Effect of Auditory Deprivation. Midwinter Meeting of the Association for Research in Otolaryngology, (1/20).
  11. Kutten K, Sollmann L, Hubka P, Trieu J, Tward DJ, Younes L, Kral A, **Ratnanather JT**. Histological Cortical Depth Profiles for Microstructural Analysis of Feline Auditory Cortex. Midwinter Meeting of the Association for Research in Otolaryngology, (1/20).
  12. Umesh A, Kutten K, Hogan P, **Ratnanather JT**, Chib V. Motor cortical thickness and the subjective valuation of physical effort in humans. Society for Neuroscience, (10/19).
  13. **Ratnanather JT**, Kutten K, Hubka P, Sollmann L, Tward DJ, Younes L, Kral A. Normal and equivolumetric coordinate systems for measuring auditory cortical changes. CRCNS PI Meeting, (9/19).
  14. Kutten K, Hubka P, Sollmann L, Younes L, Kral A, **Ratnanather JT**. Methods for measuring auditory cortical changes in feline model of cochlear implantation, Conference on Implantable Auditory Prostheses, (7/19).
  15. Kutten K, Hubka P, Tward D, Younes L, Kral A, **Ratnanather JT**. Equivolumetric normal coordinate systems for structural analysis of feline auditory cortical areas. Midwinter Meeting of the Association for Research in Otolaryngology, (2/19).
  16. Nair P, Shade J, Feliciano A, Reed N, West J, **Ratnanather JT**. Software application development and acoustic validation of a sound field hearing screening tool. Midwinter Meeting of the Association for Research in Otolaryngology, (2/19).
  17. Dhir SB, Kutten K, Li M, Faria A, **Ratnanather JT**. Topographic visualization of the acoustic radiation in normal hearing and deaf subjects via semi-automated tractography. Midwinter Meeting of the Association for Research in Otolaryngology, (2/19).
  18. Manno FAM, Kumar R, Rodriguez-Cruces R, Lau C, **Ratnanather JT**. The effect of profound hearing loss: meta-analysis of bilateral and unilateral structural MRI studies. Midwinter Meeting of the Association for Research in Otolaryngology, (2/19).
  19. Manno FAM, Kumar R, Rodriguez-Cruces R, Lau C, **Ratnanather JT**. Profound bilateral and unilateral hearing loss alters large scale macroscopic cortical asymmetry and Yakovlevian torque. Midwinter Meeting of the Association for Research in Otolaryngology, (2/19).
  20. Jacob A, Tward D, Flaherty S, Resnick S, **Ratnanather JT**, Agrawal Y. Linking vestibular function and cortical and subcortical alterations in an aging population. Midwinter Meeting of the Association for Research in Otolaryngology, (2/19).
  21. Kulason S, Schretlen D, Sawa A, **Ratnanather T**, Ishizuka K. Measuring the relationship between specific phosphorylation of DISC1 and Cortical thickness in psychotic disorders. SOBP, (5/18).
  22. Athey T, Rootes-Murdy K, Gkazer K, Goes F, Mondimore F, Zandi P, **Ratnanather T**, Mahon P. A pilot 7T subcortical shape analysis of lithium response in bipolar disorder. SOBP, (5/18).
  23. Wang L, **Ratnanather JT**, Tward DJ, Heiman Z. Speech Perception Analysis via Automated Phoneme Alignment. CI2018, Washington D.C. (3/18).
  24. Wang L, Heiman Z, Tward DJ, **Ratnanather JT**. Speech Perception Analysis via Automated Phoneme Alignment. Midwinter Meeting of the Association for Research in Otolaryngology, (2/18).

25. Kamil RJ, Jacob A, **Ratnanather JT**, Resnick SM, Agrawal Y. Vestibular function and hippocampal volume in the Baltimore Longitudinal Study of Aging (BLSA). Midwinter Meeting of the Association for Research in Otolaryngology, (2/18).
26. **Ratnanather JT**. Structural Imaging of the deafened brain – a review. 6<sup>th</sup> International Conference on the Auditory Cortex, Banff, Canada (9/17)
27. Takayanagi Y, Kulason S, Sasabayashi D, Nakamura M, Takahashi T, Fuuichi A, Kido M, Nishikawa Y, Katagir N, Sakama A, Obara C, Matsumoto K, Mizuno M, **Ratnanather T**, Suziki M. Prediction of psychosis using labeled cortical distance mapping and machine-learning methods. Human Brain Mapping, Vancouver, Canada (6/17)
28. Tward DJ, Sicut CC, Brown T, Miller EA, **Ratnanather JT**, Younes L, Bakker A, Albert M, Gallagher M, Mori S, Miller MI. Local Atrophy of entorhinal and trans-entorhinal cortex in mild cognitive impairment measured via diffeomorphometry. Society for Neuroscience Annual Meeting, San Diego CA, 2016.
29. **Ratnanather T**, Arguillere S, Younes L. A surface-based diffeomorphic method for calculating cortical thickness. Human Brain Mapping, Geneva, Switzerland (6/16)
30. Kulason S, Ishizuka K, Banerjee A, Ceyhan E, Barta P, Sawa A, Miller M, **Ratnanather T**. Quantitative Cortical Shape Measures in Schizophrenia. Human Brain Mapping, Geneva, Switzerland (6/16)
31. Holt A, Reiss L, Baskent D, Davis-Venn E, Hoa M, Mustapha M, Peterson D, **Ratnanather T**, Rajguru S, Ross A, Liu C, Francis H. Hearing Loss and Human Genetics: Science, Policy and Beyond Overview. Midwinter Meeting of the Association for Research in Otolaryngology, 2016.
32. Muca A, Patel J, Mori S, **Ratnanather T**, Holt A. Longitudinal MRI analysis of volumetric differences in Brainstem Neurons following noise-induced temporary threshold shift. Midwinter Meeting of the Association for Research in Otolaryngology, 2016.
33. Bhattacharya R, Heston M, Song J, Fernandez L, **Ratnanather T**. Challenges in designing and developing an auditory training ipad app for adults with hearing loss. Midwinter Meeting of the Association for Research in Otolaryngology, 2015.
34. **Ratnanather T**. Speech Banana – a modular ipad app for auditory training for adults with hearing loss. Midwinter Meeting of the Association for Research in Otolaryngology, 2015.
35. Kulason S, Tward D, Ng K, Zhang J, Krakauer JW, **Ratnanather JT**, O’Brien R, Miller MI. Anatomical Biomarkers of Learning in a murine model. Society for Neuroscience Annual Meeting, Washington, DC, 2014.
36. Ishizuka K, Horiuchi Y, Ishii S, Gamao N, Saito A, **Ratnanather T**, Kulason S, Schretlen D, Kamiya A, Miller M, Okana H, Sawa A. DISC1 serine-713 phosphorylation-dependent neurodevelopmental switch: Its impact on anatomy, cognition and mental conditions. Society for Neuroscience Annual Meeting, Washington, DC, 2014.
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41. **Ratnanather JT**, Limb CJ. Factors behind the “cleaning” of the auditory pathway in late implantation of prelingual oral deaf adults. Int. Symp. Auditory and Audiological Research, Nyborg, Denmark. (8/13).
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66. Crocker B, Pisano DV, Poynton CB, Honeycutt NA, Barta PE, **Ratnanather JT**. Validating dynamic programming delineation of the Superior Temporal Gyrus gray/white cortical surface, Human Brain Mapping, San Francisco, 2009.
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- GA. 2005.
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  113. Beg MF, Majethia A, Browne M, Kaiser TH, Martone M, Wong KF, Massie AB, Homer J, **Ratnanather JT**, Miller MI. Enhancing tools to manipulate anatomical images: a step towards a federated neuroscience image database. National Partnership for Advanced Computational Infrastructure All-Hands Meeting, San Diego, CA, 2001.
  114. **Ratnanather JT**, Batman S, Francis H, Flores J, Roberts P, Nutt RC. Spatial analysis of spiral ganglion cells from human temporal bones. Midwinter Meeting of the Association for Research in Otolaryngology, 2001.
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122. **Ratnanather JT**, Spector, AA, Popel AS, Brownell WE. Viscosity effects on the dynamics of the cochlear outer hair cell. Annual Meeting of the Society of Mathematical Biology, Raleigh, NC, 1997.
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125. Zhi M, **Ratnanather JT**, Brownell WE. Triggering water permeability changes in outer hair cells. Midwinter Meeting of the Association for Research in Otolaryngology, St. Petersburg, FL, 1995.
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127. Sit PS, Bittner CA, **Ratnanather JT**, Brownell WE. Vesiculation of the outer hair cell cytoplasmic membrane. Midwinter Meeting of the Association for Research in Otolaryngology, St. Petersburg, FL. 1994.
128. **Ratnanather JT**, Brownell WE, Popel AS. Mechanical properties and water permeability coefficient of the outer hair cell. Midwinter Meeting of the Association for Research in Otolaryngology, St. Petersburg, Fl. 1993.
129. **Ratnanather JT**, Daniels PG. Self-induced thermal boundary layer separation. 44th Annual meeting of the Division of Fluid Dynamics of the American Physical Society, Phoenix, AZ, 1991.
130. **Ratnanather JT**, Daniels PG. On self-induced thermal boundary layer separation. 40th British Applied Mathematics Colloquium, Oxford, England, 1991.
131. **Ratnanather JT** E-mail: a tool for the disabled scientist and student. "Changing lives: New technology for people with disabilities" symposium at American Association for the Advancement of Science Annual Meeting, Washington DC, 1991.
132. **Ratnanather JT**. E-mail: - the way forward. XVIIth Int. Congress on the Education of the Deaf, Rochester, NY, 1990.
133. **Ratnanather JT**, Phillips WRC. The turbulence law of the wake in a boundary layer. 42nd Annual meeting of the Division of Fluid Dynamics of the American Physical Society, Palo Alto, CA, 1989.
128. **Ratnanather JT**, Phillips WRC. The outer region of a turbulent boundary layer. 41st Annual meeting of the Division of Fluid Dynamics of the American Physical Society, Buffalo, NY, 1988.

#### OTHER PUBLICATIONS

1. **Ratnanather JT**, 2020. Expanding Accessibility in Neuroscience Through Speech-to-Text Technologies. Neuronline, <https://neuronline.sfn.org/training/expanding-accessibility-in-neuroscience-through-speech-to-text-technologies>.
2. Adler HL, **Ratnanather JT**, Steyger PS, Buran BN, 2019. Scientists with Hearing Loss Changing Perspectives in STEMM. Acoust. Today 15(1):66-70.
3. Adler HJ, Anbuhl KL, Atcherson SR, Barlow N, Brennan MA, Brigande JV, Buran BN, Fraenzer JT, Gale JE, Gallun FJ, Gluck SD, Goldsworthy RL, Heng J, Hight AE, Huyck JJ, Jacobson BD, Karasawa T, Kovačić D, Lim SR, Malone AK, Nolan LS, Pisano DV, Rao VRM, Raphael RM, **Ratnanather JT**, Reiss LAJ, Ruffin CV, Schwalje AT, Sinan M, Stahn P, Steyger PS, Tang SJ, Tejani VD, Wong V. Community Network for deaf scientists, Science, 2017, 356:386-387.
4. **Ratnanather JT**. 2017. Accessible Mathematics for People with Hearing Loss at Colleges and Universities. Notices of the American Mathematical Society, 64, 1180-1183.
5. **Ratnanather JT**. 2016. Mentoring the Future. Hearing Health Magazine. Winter 2016, p. 12-15.
6. **Ratnanather JT**. 2016. Mentoring students with hearing loss in Science, Technology, Engineering and

Mathematics. University College London Department of Mathematics De Morgan Association Newsletter 2015.

7. **Ratnanather JT.** 2015. Speech Banana: a mobile platform for auditory training for adults with hearing loss. ASHA KIRAN 2015. p11-14.
8. Raphael RM and **Ratnanather JT.** Deaf and Hard of Hearing People in Biomedical Engineering and Bioengineering. Volta Voices, p. 22-24 March/April 2003.
9. **Ratnanather JT** Review of “Web Accessibility for People with Disabilities”, Volta Review, 102, no. 2, p.75-76, 2002.
10. **Ratnanather JT.** The Power of Two Line Voice Carry Over. Contact. 12, 22-27, 1997.
11. **Ratnanather JT.** Eight years in higher education: a deaf perspective. In “European Conference: a european university for students with special needs”. Ed. C. Marco, University of Mons, Belgium, 1990.
12. **Ratnanather JT.** International and national research computer networks - their implications for hearing impaired students. In “European Deaf Students Can .... : Deaf Students in Higher Education”, Ed. Carter, K., Deaf-Fax, University of Reading, England, 1988.
13. **Ratnanather JT.** Experiences of a deaf undergraduate. In Proceedings of the XVIth International Congress on the Education of the Deaf, Manchester, UK 1985, Ed. Taylor, I.G. Croom-Helm Publishers, 1987.
14. **Ratnanather JT.** Studies in simple turbulence models. Oxford University Computing Laboratory Numerical Analysis Group Research report, NA-87/7, 1987.

**TEACHING EXPERIENCE – ONGOING COURSES**

|        |                                    |     |                |                               |
|--------|------------------------------------|-----|----------------|-------------------------------|
| 2016 – | Instructor                         | JHU | EN.580.431/631 | Introduction to Computational |
|        | Medicine I (Computational Anatomy) |     | ~50 students   |                               |
| 2016 – | Instructor                         | JHU | EN.580.424     | Neuroengineering and Lab      |
|        | (Speech Perception Module)         |     | ~30 students   |                               |

**TEACHING EXPERIENCE – ONE-TIME**

|      |                                       |     |               |                                 |
|------|---------------------------------------|-----|---------------|---------------------------------|
| 2012 | INSTRUCTOR                            | JHU | EN.580.404.01 | The Bionic Ear: an odyssey from |
|      | profound deafness to possible hearing |     | ~15 students  |                                 |

**ADVISORY INFORMATION**

**Postdoctoral Fellows**

1. Francis A. M. Manno (2021-2023):
2. Kwame S. Kutten (2017-2019): Two book chapters, several conference posters. Teaching faculty, JHU BME.
3. Felipe Arrate (2010-2011): One paper. Data Scientists in a Silicon Valley company.
4. Haroon Burhanullah (2009-2010): One paper. Assistant Professor, Dept of Geriatric Psychiatry, Johns Hopkins Bayview.
5. Elvan Ceyhan (2004-2005): several papers. Assistant Professor, Dept of Mathematics, Auburn University.
6. Sirong Zhang (2004-2007): three papers. Associate Professor, Dept of Mathematics, Beihang University, China.

**Ph.D. Students**

- Milan Dower (2022-)
- Dominic Padova (2023-): D.Eng.

**M.S. Students**

1. Claire Vania 2022-2023
2. Jacob Desman 2021-2022
3. Qianwei Li 2020-2021

|                        |           |   |
|------------------------|-----------|---|
| 4. Sanika Phatak       | 2020-2021 |   |
| 5. Jenny Trieu         | 2019-2020 |   |
| 6. Eshan Joshi         | 2020      |   |
| 7. Teja Karri          | 2019      | thesis committee                                    |
| 8. Dominic Padova      | 2017-2019 | thesis committee (JH Engineering for Professionals) |
| 9. Shreyas Padhy       | 2017-2019 | thesis committee                                    |
| 10. Athira Jacob       | 2016-2018 | one paper   |
| 11. Hongkun Kim        | 2016-2018 | thesis committee                                    |
| 12. David Lee          | 2013-2015 | two papers, thesis committee                        |
| 13. Saumya Gurbani     | 2013      | thesis committee                                    |
| 14. Huong Trinh        | 2011-2013 | two papers  |
| 15. Jacqueline Wentz   | 2010-2012 |   |
| 16. Neeraja Penumetcha | 2004-2006 | two papers  |
| 17. Rakesh Lal         | 2002-2004 | two papers, thesis committee                        |
| 18. Ken Probst         | 1999-2000 | thesis committee (Medical Illustration)             |

**Undergraduate Students (BME unless noted otherwise)**

1. Mitra Harpale '24 Jacob Desman '21
2. Ben Bae '21 (Neuroscience)
3. Jessica Kasamoto '21
4. David Shi '21
5. Jason Wu '22 (Chemical & Biomolecular Engineering)
6. Amith Umesh '21 (Neuroscience)
7. Zachary Zarubin '20
8. Looi Nga Laam '23 (Neuroscience and Computer Science)
9. Sungho Yoo '21 (Computer Science and Applied Mathematics & Statistics)
10. Connie He '20 (Computer Science and Chemical & Biomolecular Engineering)
11. Lily Batchelor '23 (Chemical & Biomolecular Engineering)
12. Jamie Shade '19
13. Judy Wang '18
14. Thomas Athey '18
15. Lindsey Kriz '17
16. Inez Lam '16
17. Seung Wook Lee '16
18. Carolyn Zin '16 (Chemical & Biomolecular Engineering)
19. Jo Eun Song '16
20. Hong Seo Lim '16 (also '17 MSE Applied Mathematics and Statistics)
21. Sue Kulason '12
22. Edric Tam '16
23. Aditya Banerjee '17
24. Kanami Mori '16 (Neuroscience)
25. Lindsey Fernandez '15
26. Rohit Bhattachyara '15
27. Margo Heston '15
28. Margaret Chow '14
29. David Soobin Lee '14 (and MSE)
30. Shannon Cebren '13 (Applied Mathematics & Statistics)
31. Payal Patnaik '12
32. Won Jong Choi '12
33. Shane Steinert-Threlkeld '11 (Mathematics and Philosophy)
34. Jordan Etten '13 (Chemical and Biomolecular Engineering)
35. Jung Hun Kim '10 (MSE Applied Mathematics & Statistics)
36. Nayoung A. Lee '03

37. Joseph Heng '10
38. Yoshiako Sono '10
39. JaeHo Sohn '10 (Applied Mathematics & Statistics)
40. Britni Crocker '09
41. Matt Trachtenberg '09
42. Nikhil Ram Mohan '09 (Applied Mathematics & Statistics)
43. Ann Kennedy '09
44. Suraj Kadi '08
45. Kihyuk Hong '08 (Applied Mathematics and Statistics)
46. Stephen Tang '07
47. Eric Cochran '07 (Neurosciences and Economics)
48. Neda Jahanshad '06Dominic Pisano '06 (Neuroscience)
49. Michael An '06
50. Tiffany Tasky '06 (Mathematics and Applied Mathematics & Statistics)
51. Russell Frisby '05
52. Clare Poynton '04
53. Katherine Johnson '04
54. Adam Dziorny '03 (and Computer Science)
55. Allison Barker '03 (and Applied Mathematics & Statistics)
56. Darren Roblyer '03
57. D. Agatha Lee '03
58. Srinivas Peddi '02 (and Computer Science)
59. Aashish Majethia '02
60. Paul Roberts '02
61. Rakesh Lal '01 (and Computer Science)
62. Salil G. Patel '01
63. Guangli Hoh '01

**Summer and Visiting Students (BME and undergraduate unless noted otherwise):**

**2019- Co-Director, Johns Hopkins Neuroscience Scholar Program (R25NS107167)**

**2016- STEM-HEAR (STEMM for students with Hearing loss to Engage in Auditory Research)**

1. Benjamin Luo (Computer Science, Pomona College, 2021)
2. Mary Caroline Yuk (Neuroscience, University of Alabama, 2020)
3. Sarinah Wahl (Neuroscience, University of Maryland, College Park, 2019 & 2020)
4. Sam Bidwell (Mathematics & Physics, Wesleyan University, 2018 & 2019)
5. Francis Manno (Universidad Nacional Autónoma de México, Mexico City and City University of Hong Kong, 2018)
6. Greg Alspaugh (Physics, Davidson College, 2018-)
7. Rachit Kumar (Georgia Tech, 2018)
8. Pierce Perkins (Chemistry, Morgan State University, 2018)
9. Edward Robinson (Biological Sciences, Tufts University, 2018)
10. Bryn Dhir (International American University College of Medicine, 2018-2020)
11. Mackenzie Quirk (Engineering, Griffiths University, Australia, Jan-May 2016)
12. Evan Mercer (Neuroscience, Vanderbilt, 2016)
13. Muwei Li (PhD Student, Sichuan University, 2010-2012)
14. Melissa Plummer (Syracuse University, 2013)
15. Elizabeth Postell (Neuroscience, University of Delaware, 2010 & 2011)
16. Jonathan Virga (Mathematics & Computer Science, University of Maryland, College Park, 2010 & 2011)
17. Geoffrey Gunter (Washington University at St Louis, 2010 & 2011)
18. Rossitza Irobaleva (Bioinformatics, University of Maryland, Baltimore County, 2006)
19. Ali Hasan (University of Kansas School of Medicine, 2004)

20. Matthew Browne (UCSD, 2001 & 2002)
21. Robert Nutt (Dartmouth School of Medicine, 2001)
22. Stephanie Creech (Computer Science, Goucher, 2001)

**High School Students**

1. Lydia Wang, Montgomery Blair HS, Summer 2017. A few Center for Talented Youth (CTY) summer interns

**Post-baccalaureate Students**

1. Milan Dower (2020-2021) – advisory committee
2. Jessica Campanile (2020-2021) – advisory committee

**Thesis Committee Service (BME unless noted otherwise)**

1. Jing J (UNSW School of Medicine)
2. Sue Kulason
3. Brian Lee
4. Michael Ketcha
5. Kai Yuen Lim
6. Daniel Tward
7. Nayoung Lee
8. Kwame Kutten
9. Felipe Arrate (Applied Mathematics & Statistics)
10. Sirong Zhang (Mathematics)
11. Marc Valliant
12. Algerim Djamanakova
13. XH Chen (UNSW School of Medicine)
14. Aastha Jain (Applied Mathematics & Statistics)
15. Yichen Chen (Applied Mathematics & Statistics, GBO)
16. Elvan Ceyhan (Applied Mathematics & Statistics, GBO)

**RESEARCH**

**EXTERNAL RESEARCH SUPPORT: (not updated)**

9/17/19 – 8/31/22 NIH Mouselight RF1MH121539  
(PI Mueller)

**Accessible technologies for high-throughput, whole-brain reconstructions**

Funding to lab, entire period: \$71,015 total; \$43,368 direct  
Funding to lab, current year \$23,671 total \$14,456 direct

9/1/19 – 3/31/24 NIH BIOCARD U19AG033655  
(PI Albert)

**Biomarkers of Cognitive Decline Among Normal Individuals: The BIOCARD Cohort**

Funding to lab, entire period: \$113,805 total; \$69,500 direct  
Funding to lab, current year \$22,761 total \$13,900 direct

6/15/18 – 4/30/22 NIH HD R01NS1026  
(PI Miller)

**Tracing Spread of Pathology Within The HD Brain via Automated Neuroimaging**

Funding to lab, entire period: \$215,986 total; \$131,900 direct  
Funding to lab, current year \$53,996 total \$32,975 direct

9/21/17 – 5/31/22 NIH CSHL U19 5U19MH114821

(PI Huang)

**A High Resolution Cell Type Atlas of the Mouse Forebrain**

Funding to lab, entire period: \$82,407 total; \$50,325 direct

Funding to lab, current year \$16,481 total \$10,065 direct

7/01/17 – 6/30/21 NIDCD CRCNS R01DC016784

(PI Ratnanather)

**CRCNS US-German Res Prop: functional computational anatomy of the auditory corte**

Funding to lab, entire period: \$725,316 total; \$443,393 direct

Funding to lab, current year \$93,498 total \$146,663 direct

9/30/16 – 7/30/21 NIBIB Neuro R01 EB020062

(PI Miller)

**Neurodegenerative and Neurodevelopmental Subcortical Shape Diffeomorphometry**

Funding to lab, entire period: \$142,089 total; \$86,772 direct

Funding to lab, current year \$35,522 total \$21,693 direct

9/01/16 – 6/30/21 NIH TRD4 P41EB015909

(PI VanZijl)

**The Resource of Quantitative Functional MRI—TRD4**

Funding to lab, entire period: \$118,358 total; \$72,280 direct

Funding to lab, current year \$23,671 total \$14,456 direct

9/25/14 – 5/31/21 NIH DISC-1 R01MH105660

(PI Ishizuka)

**DISC1-dependent defects in neural fate, corticogenesis and cognition in psychosis**

Funding to lab, entire period: \$163,903 total; \$101,175 direct

Funding to lab, current year \$32,780 total \$20,235 direct

**EXTERNAL RESEARCH SUPPORT: Completed**

9/15/15 – 5/31/2019 NIA PhaseII/PhaseIII 5R01AG048349-04

(PI Gallagher)

**PHASE II/III TRIAL FOR SLOWING PROGRESSION IN MILD COGNITIVE IMPAIRMENT**

Funding to lab, entire period: \$90,413 total; \$55,811 direct

Funding to lab, current year \$22,602 total \$13,952 direct

8/01/16 – 7/31/2020 NIH Hippocampal Atrophy 5R03DC015583-04

(PI Agrawal)

**Does Vestibular Loss Predict Hippocampal Atrophy in Aging Adults**

Funding to lab, entire period: \$90,413 total; \$55,811 direct

Funding to lab, current year \$22,602 total \$13,952 direct

7/01/09 – 6/30/2014 NIBIB MRL Localization 2R01EB000975-05A2

(PI Miller)

**Validation of Structural/Functional MRL Localization**

Funding to lab, entire period: \$226,292 total; \$139,686 direct

Funding to lab, current year \$56,753 total \$34,921 direct

5/01/09 – 8/28/2013 NIBIB Computational Anatomy R01EB008171

(PI Miller)

**NCBC: 3D Shape Analysis for Computational Anatomy**

Funding to lab, entire period: \$72,331 total; \$44,648 direct  
 Funding to lab, current year \$18,082 total \$11,162 direct

4/01/09 – 1/31/2013 NIH Model of Human Heart Imaging Research 5R01HL091036-03  
 (PI Segars)

**Multi-scale Model of the Human Heart for Imaging Research**  
 Funding to lab, entire period: \$55,798 total; \$34,443 direct  
 Funding to lab, current year \$13,950 total \$8,610 direct

9/22/05 – 8/31/2009 NIH Simulation Tools for Dynamic CT 5R01EB001838-04  
 (PI Segars)

**Simulation Tools for Dynamic CT**  
 Funding to lab, entire period: \$103,330 total; \$63,783 direct  
 Funding to lab, current year \$25,832 total \$15,946 direct

3/07/11 – 11/30/2015 NHLBI CVRG 5R24HL085343-09  
 (PI Winslow)

**Cardiovascular Research Grid (CVRG)**  
 Funding to lab, entire period: \$86,073 total; \$53,132 direct  
 Funding to lab, current year \$21,518 total \$13,283 direct

5/01/10 – 02/28/2015 NIH Neuroimaging in Early Onset Depression 1R01MH090786-01  
 (PI Luby)

**Neuroimaging in Early Onset Depression: Longitudinal Assessment of Brain Changes**  
 Funding to lab, entire period: \$58,123 total; \$35,878 direct  
 Funding to lab, current year \$11,624 total \$7,175 direct

9/26/12 – 07/31/2014 NIH Huntington's Disease 1U01NS082085  
 (PI Miller)

**Basal Ganglia Shape Analysis and Circuitry in Huntington's Disease**  
 Funding to lab, entire period: \$43,036 total; \$26,566 direct  
 Funding to lab, current year \$21,518 total \$13,283 direct

**SERVICE**

**UNIVERSITY SERVICE –**

Homewood Council on Inclusive Excellence (2020-)  
 Search Committee: Chief Diversity Officer (2019-2020)  
 Co-Director, Johns Hopkins Neuroscience Scholars Program (www.jhns.org: funded by R25 NS107167, PI – Amanda Brown, Ph.D, Department of Neurology, Johns Hopkins University School of Medicine)  
 WSE Diversity Committee (2005-2007)  
 WSE Faculty Academic Advisory Committee (2021-)  
 Diversity, Inclusion, Culture and Equity Committee – Dept of Biomedical Engineering (2020-)  
 Homewood Academic Council Research Faculty AdHoc SubCommittee (2022)

**PROFESSIONAL SERVICE –**

Tenure and Promotion Reviews for School of Medicine faculty at five institutions  
 Ad-hoc reviewer for Center for Scientific Research (NIH), Department of Energy, National Science Foundation (CRCNS, PAESMEM)  
 Association for Research in Otolaryngology (ARO) Subcommittees – Diversity (2005-2011), External Relations (2020-2023)  
 Organization for Human Brain Mapping (OHBM) Diversity and Inclusion Committee (2019-)  
 Organization for Human Brain Mapping (OHBM) Technology Task Force (2020-2021)  
 External Advisory Committee, Research in Human Communication and its disorders (T32 Postdoctoral

**Aug 2023**

Training Program), Boys Town National Research Hospital (2020-)

Ad hoc reviewer for American Journal of Audiology, Journal of Association for Research in Otolaryngology, Laryngoscope, Neuroimage, Medical Imaging Analysis, Human Brain Mapping, Notices of American Mathematical Society,

**OTHER SCHOLARLY AND TECHNICAL OUTPUT**

**Other Roles**

- 1996- Chairperson, College Financial Aid Committee, Alexander Graham Bell Association for the Deaf and Hard of Hearing
- 2002- Organizing Committee, Research Symposium, Alexander Graham Bell Association for the Deaf and Hard of Hearing