SATRAJIT SUJIT GHOSH

Curriculum Vitae

McGovern Institute for Brain Research
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Degrees
PhD, Cognitive and Neural Systems, Boston University, 2005, Prof. Frank Guenther
B.S. (Honors), Computer Science, National University of Singapore, 1997, Prof. Lonce L. Wyse

Employment
Principal Research Scientist, McGovern Institute for Brain Research, MIT, 2015 – Current
Assistant Professor, Department of Otolaryngology, Harvard Medical School, 2014 – Current
Research Scientist, McGovern Institute for Brain Research, MIT, 2011 – 2014
Research Scientist, Research Laboratory of Electronics, MIT, 2007 – 2011
Postdoctoral Associate, Research Laboratory of Electronics, MIT, 2004 – 2007, Dr. Joseph S. Perkell
Software Engineer, Kent Ridge Digital Labs, Singapore, 1997-1998

External Positions held
Massachusetts Eye and Ear, Harvard Medical School, 2014 – Current, Research Associate
Speech and Hearing Biosciences and Technology, (now in) Division of Medical Sciences, Harvard Medical School, 2008 – Current, Member of the Faculty
Program in Neuroscience, Division of Medical Sciences, Harvard Medical School, 2019 – Current, Affiliate Faculty
Standards for Datasharing Taskforce, International Neuroinformatics Coordinating Facilities, 2010 – 2016
Executive board, TankThink Labs, LLC, 2011 – 2015
Department of Cognitive and Neural Systems, Boston University, 2005-2010, Research Fellow

Honors
Winner - Predictive Analytics Competition for Depression, University of Muenster, 2018
Phase I winner for the Open Science Prize competition, NIH, HHMI, Wellcome Trust, 2016
Educational stipend, International Society for Magnetic Resonance in Medicine, 2008
Graduate Teaching Fellow Award, Boston University, 2000
Presidential University Graduate Fellowship, Boston University, 1998
Dean's List, National University of Singapore, 1994

UROP Students supervised
Alkhairy, Samiya, Fall, 2009, Spring 2010
Zhang, Mark, Spring 2012
Ung, William, Spring 2012
Smith, Ashley, Spring 2015
Biswas, Jyotishka, Spring 2016
Suh, Michelle, Spring 2016
Taylor, Tilly, Spring 2016
Jackson, Blake, Spring 2016
Batmunkh, Zulsar, Spring 2016

Wu, David, Fall 2016
Wu, Kathy, Spring 2017
Shumaev, Alexander, Fall 2018
Moreno, Felipe, Fall 2018

Ph.D. Students Supervised
Ciccarelli, Gregory, Characterization of Phone Rate as a Vocal Biomarker of Depression, 2017, Technical Associate MIT Lincoln Laboratory, Lexington MA
Sitek, Kevin, Investigating the human subcortical auditory pathway with MRI, 2019, Postdoctoral Associate at Baylor College of Medicine, Houston TX
Kleinberger, Rebecca, Media Lab, (Reader) In progress
Low, Daniel, SHBT graduate student, In progress
Burdinski, Debbie, MD/PhD student, Harvard Medical School, In progress

Postdoctoral Researchers Supervised
Ghosh, Debanjan, 2018 - 2019, Educational Testing Service, Princeton, NJ
Padhy, Smruti, 2016 - 2018, Texas Advanced Supercomputing Center
Jarecka, Dorota, 2016 -
Rajaei, Hoda, 2019 -

Teaching experience
6.541/SHBT.204, Speech Communication, Spring 2009, 2011- 2016
6.551/SHBT.200, Acoustics of Speech and Hearing, Fall 2007- 2015
9.S912, Quantitative Methods and Computational Models in Neuroscience, Fall 2015
HST.583, fMRI Data Acquisition and Analysis, Fall 2015, 2017, 2019
HST.714/SHBT.200/9.016, Acoustics, Production, Perception of Speech, Fall 2016 -

Service

Internal service:
Admissions committee, Speech and Hearing Biosciences and Technology Program (HST), 2010 – Current
Curriculum committee, Speech and Hearing Biosciences and Technology Program (HST), 2009 – Current
Director, Openmind Neuroscience High Performance Computing Resource, 2014 -
Chair, BCS Faculty Committee on Computational Infrastructure, 2019 -

External service:
Executive Board
NWB – Neurodata Without Borders (https://nwb.org)
Scientific Advisory Board
SINDS – Neurohackademy Training Program (https://neurohackademy.org/)
CONP – Canadian Open Neuroscience Platform (https://conp.ca/)
Editorial board
BMC NeuroCommons, 2018 – Current (co Editor-In-Chief)
Frontiers in Brain Imaging Methods, 2012 – Current
Frontiers in Neuroinformatics, 2016 – Current
Frontiers in Human Neuroscience, 2015 – 2017
Advisory member
Organization for Human Brain Mapping (OHBM) - Best Practices Committee, 2020 - 2024

Alzheimer's Drug Discovery Foundation - Diagnostics Accelerator Speech Consortium, 2020

Ad hoc grant reviewer

National Institute of Health, 2017 - (NOIT, BRAIN Initiative, EITN)
National Science Foundation, 2008, 2010, 2013
National Medical Research Council, Singapore, 2007, 2009, 2011-2012
Department of Defense, 2011
Simons Foundation, 201
Israel Science Foundation, 2015, 2019

Ad hoc editorial reviewer

Biological Psychiatry
Brain
Brain and Language
Brain Structure and Function
Cerebral Cortex
Current Biology
Elife
European Journal of Neuroscience
Frontiers in Computational Neuroscience
Frontiers in Systems Neuroscience
Frontiers in Neuroinformatics
Human Brain Mapping
Journal of the Acoustical Society of America
Journal of Machine Language Research
Journal of Neuroscience
Journal of Speech, Language and Hearing Research
Magnetic Resonance in Medicine
Nature Methods
Nature Translational Psychiatry
NeuroImage
Neuroinformatics
PLOS One
PLOS Computational Biology

Editorial board, Special Research Topic, Python in Neuroscience I / II, Frontiers in Neuroscience
Nipype teaching workshops, Edinburgh 2011, Magdeburg 2012, Boston 2017
Speaker, Educational workshop, Organization for Human Brain Mapping, 2013, 2018
Organizer, HBM Hackathon, Organization for Human Brain Mapping, Seattle, 2013
Local organizing committee, 4th Biennial Conference on Resting State Connectivity, Boston, 2014

Technological and Other Scientific Innovations

A setup for increasing speech fluency	Methods and Apparatus for Reducing Stuttering Provisional US Patent filed This is based on dissertation work of postdoctoral associate Rebecca Kleinberger. It involves an apparatus and a software to enable realtime vocal modification to increase fluency in individuals who stutter.

MIT VoiceUp: A mobile platform for tracking health related information	https://github.com/satra/MIT-VoiceUp-App Related U.S. Patent No. 10,127,929: Assessing Disorders Through Speech and a Computation Model. I directed the development of this platform and associated applications available from the Google Play Store and Apple Itunes Store. These are intended to allow researchers to collect longitudinal survey data from questionnaires, active tasks such as speaking and walking. It also allows participants to access their own data through a personal data store. It was supported by a collaboration between the McGovern Institute for Brain Research and MIT Lincoln Laboratory.
Nipype: Brain imaging analysis framework 2008-	Gorgolewski K, Burns CD, Madison C, Clark D, Halchenko YO, Waskom ML, Ghosh SS. (2011). Nipype: a flexible, lightweight and extensible neuroimaging data processing framework in Python. Front. Neuroimform. 5:13. https://github.com/nipy/nipype Nipype provides an environment that encourages interactive exploration of algorithms from different packages (e.g., SPM, FSL, FreeSurfer, Camino, MRtrix, AFNI, Slicer), eases the design of workflows within and between packages, and reduces the learning curve necessary to use different packages. I initiated the development through an NIH R03 as PI, maintaining it as an opensource collaborative project, and now supporting the development through an NIH R01 as PI.
MURFI: a realtime MR biofeedback software 2007-	Hinds, O., **Ghosh, S**., Thompson, T.W., Yoo, J.J., Whitfield-Gabrieli, S., Triantafyllou, C., Gabrieli, J.D. (2011) Computing moment-to-moment BOLD activation for real-time neurofeedback. Neuroimage. 54(1):361-8. PMID: 20682350. https://github.com/gablab/murfi2/ This opensource software framework allows biofeedback of activation based on the BOLD signal. I created the testing and validation framework for the software and contributed to its design and implementation. We are now using this software for ongoing projects in the treatment of schizophrenia and in the development of new paradigms. Development of this was supported by the McGovern Institute MINT program.
Audapter: A realtime vocal modification software 2005 - 2010	Cai, S., **Ghosh, S.**, Guenther, F., Perkell, J. (2011). Focal manipulations of formant trajectories reveal a role of auditory feedback in the online control of both within-syllable and between-syllable speech timing. J Neurosci 31: 45. 16483-16490. PMID: 22072698. https://github.com/shanqing-cai/audapter_matlab https://github.com/shanqing-cai/audapter_mex This opensource framework allows modifying vocal characteristics in realtime. I established the initial framework and guided Marc Boucek and Shanqing Cai in extending the framework to perform new paradigms.
Noise suppression for MRI patient 2007	Two provisional patents were applied for but not pursued after expiry. Online noise suppression software for Magnetic Resonance Imaging

microphone input 2004-2005	2007 Bidirectional noise suppressing communication setup for Magnetic Resonance Imaging https://arxiv.org/abs/1207.5827 The goal of this software was to provide a mechanism to suppress MR noise. This is still being used in research projects at MIT.
Carotid artery diameter estimation from ultrasound images 1999-2000	Current usage status is unknown. I built the graphical interface for the software to provide a semi-automated method for artery diameter estimation that significantly reduced human interaction and validated it against manual measurements.
FlexEffex: Interactive sound effects and music 1997-1998	I contributed to the development of the FlexEffex architecture and rewrote the internal sound effects plugin API and hardware libraries. The software was subsequently sold to a company, MindMaker Inc.

Publications

1. Guenther, F.H., Nieto-Castanon, A., Tourville, J.A. and **Ghosh, S.S.** (2001) The effects of categorization training on auditory perception and cortical representations. Proceedings of the Speech Recognition as Pattern Classification (SPRAAC) Workshop, Nijmegen, The Netherlands.
2. Guenther, F.H. and **Ghosh, S.S.** (2003) A model of cortical and cerebellar function in speech. Proceedings of the XVth International Congress of Phonetic Sciences (pp. 169-173). Barcelona, Spain: 15th ICPhS Organizing Committee.
3. Guenther, F.H., **Ghosh, S.S.** and Nieto-Castanon, A. (2003) A neural model of speech production. Proceedings of the 6th International Seminar on Speech Production. Sydney, Australia
4. Nieto-Castanon, A., **Ghosh, S.S.**, Tourville, J.A., Guenther, F.H. (2003) Region of interest based analysis of functional imaging data. Neuroimage. 19(4):1303-16. PMID: 12948689.
5. Guenther, F.H., Nieto-Castanon, A., Ghosh, S.S., Tourville, J.A. (2004) Representation of sound categories in auditory cortical maps. J Speech Lang Hear Res. 47(1):46-57. PMID: 15072527.
6. Max, L., Guenther, F.H., Gracco, V.L., **Ghosh, S.S.** and Wallace, M.E. (2004) Unstable or insufficiently activated internal models and feedback-biased motor control as sources of dysfluency: A theoretical model of stuttering. Contemporary Issues in Communication Science and Disorders. 31.
7. Klein, A., Mensh, B., **Ghosh, S.**, Tourville, J., Hirsch, J. (2005) Mindboggle: automated brain labeling with multiple atlases. BMC Med Imaging. 5:7. PMCID: PMC1283974.
8. Guenther, F.H., **Ghosh, S.S.**, Tourville, J.A. (2006) Neural modeling and imaging of the cortical interactions underlying syllable production. Brain Lang. 96(3):280-301. PMCID: PMC1473986.
9. Guenther, F.H., **Ghosh, S.S.**, Nieto-Castanon, A. and Tourville, J.A. (2006) A neural model of speech production. In: J. Harrington & M. Tabain (eds.), Speech Production: Models, Phonetic Processes, and Techniques. London: Psychology Press.
10. Tiede, M., Shattuck-Hufnagel, S., Johnson, B., **Ghosh, S.**, Matthies, M., Zandipour, M. and Perkell, J. (2007) Gestural phasing in /kt/ sequences contrasting within and cross word contexts. Proceedings of the XVIth International Congress of Phonetic Sciences. Saarbrücken, Germany.
11. **Ghosh, S.S.**, Tourville, J.A., Guenther, F.H. (2008) A neuroimaging study of premotor lateralization and cerebellar involvement in the production of phonemes and syllables. J Speech Lang Hear Res. 51(5):1183-202. PMCID: PMC2652040.

12. Cai, S, Boucek, M, **Ghosh, S.S.**, Guenther, F.H., Perkell, J.S. (2008) A System for Online Dynamic Perturbation of Formant Trajectories and Results from Perturbations of the Mandarin Triphthong /iau/. International Seminar in Speech Production, Strassbourg, France.
13. Balci, S.K., Sabuncu, M.R., Yoo, J., **Ghosh, S.S.**, Whitfield-Gabrieli, S., Gabrieli, J.D., Golland, P. (2008) Prediction of Successful Memory Encoding from fMRI Data. Med Image Comput Comput Assist Interv. 2008(11):97-104. PMCID: PMC2855196.
14. Perkell, J.S., Lane, H., **Ghosh, S.S.**, Matthies, M.L., Tiede, M., Guenther, F., Ménard, L. (2008) Mechanisms of Vowel Production: Auditory Goals and Speaker Acuity. International Seminar in Speech Production, Strassbourg, France.
15. Klein, A., **Ghosh, S.S.**, Avants, B., Yeo, B.T., Fischl, B., Ardekani, B., Gee, J.C., Mann, J.J., Parsey, R.V. (2010) Evaluation of volume-based and surface-based brain image registration methods. Neuroimage. 51(1):214-20. PMCID: PMC2862732.
16. Cai, S., **Ghosh, S.S.**, Guenther, F.H., Perkell, J.S. (2010) Adaptive auditory feedback control of the production of formant trajectories in the Mandarin triphthong /iau/ and its pattern of generalization. J Acoust Soc Am. 128(4):2033-48. PMCID: PMC2981117.
17. **Ghosh, S.S.**, Kakunoori, S., Augustinack, J., Nieto-Castanon, A., Kovelman, I., Gaab, N., Christodoulou, J.A., Triantafyllou, C., Gabrieli, J.D., Fischl, B. (2010) Evaluating the validity of volume-based and surface-based brain image registration for developmental cognitive neuroscience studies in children 4 to 11 years of age. Neuroimage. 53(1):85-93. PMCID: PMC2914629.
18. **Ghosh, S.S.**, Matthies, M.L., Maas, E., Hanson, A., Tiede, M., Ménard, L., Guenther, F.H., Lane, H., Perkell, J.S. (2010) An investigation of the relation between sibilant production and somatosensory and auditory acuity. J Acoust Soc Am. 128(5):3079-87. PMCID: PMC3003728.
19. Golfinopoulos, E., Tourville, J.A., Bohland, J.W., **Ghosh, S.S.**, Nieto-Castanon, A., Guenther, F.H. (2011) fMRI investigation of unexpected somatosensory feedback perturbation during speech. Neuroimage. 55(3):1324-38. PMCID: PMC3065208
20. Silver, A.L., Nimkin, K., Ashland, J.E., **Ghosh, S.S.**, Van der Kouwe, A.J., Brigger, M.T., Hartnick, C.J. (2011) Cine magnetic resonance imaging with simultaneous audio to evaluate pediatric velopharyngeal insufficiency. Arch Otolaryngol Head Neck Surg. 137(3):258-63.
21. Brunner, J., **Ghosh, S.**, Hoole, P., Matthies, M., Tiede, M., Perkell, J. (2011) The influence of auditory acuity on acoustic variability and the use of motor equivalence during adaptation to a perturbation. J Speech Lang Hear Res. 54(3):727-39. PMID: 20966388.
22. Cai, S., **Ghosh, S.**, Guenther, F., Perkell, J. (2011). Focal manipulations of formant trajectories reveal a role of auditory feedback in the online control of both within-syllable and between-syllable speech timing. J Neurosci 31: 45. 16483-16490. PMID: 22072698.
23. Hinds, O., **Ghosh, S.**, Thompson, T.W., Yoo, J.J., Whitfield-Gabrieli, S., Triantafyllou, C., Gabrieli, J.D. (2011) Computing moment-to-moment BOLD activation for real-time neurofeedback. Neuroimage. 54(1):361-8. PMID: 20682350.
24. Gorgolewski, K., Burns, C.D., Madison, C., Clark, D., Halchenko, Y.O., Waskom, M.L., **Ghosh, S.S.** (2011). Nipype: a flexible, lightweight and extensible neuroimaging data processing framework in Python. *Front. Neuroinform.* **5**:13.
25. Perrachione, T.K., Del Tufo, S.N., **Ghosh, S.S.**, Gabrieli, J.D.E. (2011) "Phonetic variability in speech perception and the phonological deficit in dyslexia." 17th Meeting of the International Congress of Phonetic Sciences, (Hong Kong, August 2011).
26. Poline, J., Breeze, J.L., **Ghosh, S.S.**, Gorgolewski, K., Halchenko, Y.O., Hanke, M., Haslegrove, C., Helmer, K.G., Marcus, D.S., Poldrack, R.A., Schwartz, Y., Ashburner, J. and Kennedy, D.N. (2012). Data sharing in neuroimaging research. *Front. Neuroinform.* **6:**9.
27. **Ghosh, S.S.**, Klein, A., Avants, B. and Millman, K.J. (2012). Learning from open source software projects to improve scientific review. *Front. Comput. Neurosci.* **6:**18

28. Cai, S., Beal, D.S., **Ghosh, S.S**., Tiede, M.K., Guenther, F.H., Perkell, J.S. (2012) Weak responses to auditory feedback perturbation during articulation in persons who stutter: Evidence for abnormal auditory-motor transformation. PLoS One.
29. ***** Doehrmann, O., ***** **Ghosh, S.S**., Polli, F.P., Reynolds, G., Horn, F., Keshavan, A., Whitfield-Gabrieli, S., Hofmann, S.G., Pollack, M., Gabrieli, J.D. (2013) Predicting treatment response in social anxiety disorder from functional magnetic resonance imaging. JAMA Psychiatry. (***** Joint first authors)
30. Hinds, O., Thompson, T., **Ghosh, S.S.**, Yoo, J., Whitfield-Gabrieli, S., Triantafyllou, C., Gabrieli, J. (2013) Roles of Default-Mode Network and Supplementary Motor Area in Human Vigilance Performance: Evidence from Real-Time fMRI. Journal of Neurophysiology.
31. Tustison NJ, Johnson HJ, Rohlfing T, Klein A, **Ghosh SS**, Ibanez L and Avants B (2013). Instrumentation bias in the use and evaluation of scientific software: Recommendations for reproducible practices in the computational sciences. Front. Neurosci. 7:162.
32. **Ghosh, S.S.**, Keshavan, A., Langs, G (2013). Predicting Treatment Response from Resting State fMRI Data: Comparison of Parcellation Approaches. 3rd International Workshop on Pattern Recognition in NeuroImaging (Philadelphia, June 2013).
33. Perrachione, T.K. and **Ghosh, S.S.** (2013). Optimized design and analysis of sparse-sampling fMRI experiments. Front. Neurosci. 7:55. doi: 10.3389/fnins.2013.00055
34. Cai, S., Beal, D.S., **Ghosh, S.S.**, Guenther, F.H., Perkell, J.S. (2014) Impaired timing adjustments in response to time-varying auditory perturbation during connected speech production in persons who stutter. Brain and Language.
35. Cai, S., Tourville, J.A., Beal, D.S., Perkell, J.S., Guenther, F.H. and **Ghosh, S.S.** (2014). Diffusion Imaging of Cerebral White Matter in Persons Who Stutter: Evidence for Network-Level Anomalies. Front. Hum. Neurosci. 8:54
36. Christodoulou JA, Del Tufo SN, Lymberis J, Saxler PK, **Ghosh SS**, Triantafyllou C, Whitfield-Gabrieli S, Gabrieli JD. (2014). Brain bases of reading fluency in typical reading and impaired fluency in dyslexia. PLoS One. 9(7):e100552. doi: 10.1371/journal.pone.0100552. eCollection 2014.
37. Stoeckel, L.E., Garrison, K.A., **Ghosh, S.S.**, Wighton, P., Hanlon, C.A., Gilman, J.M., Greer, S., Turk-Browne, N.B., deBettencourt, M.T., Scheinost, D., Craddock, C., Thompson, T., Calderon, V., Bauer, C.C., George, M., Breiter, H.C., Whitfield-Gabrieli, S., Gabrieli, J.D., LaConte, S.M., Hirshberg, L., Brewer, J.A., Hampson, M., Van Der Kouwe, A., Mackey, S., Evins, A.E. (2014). Optimizing real time fMRI neurofeedback for therapeutic discovery and development, NeuroImage: Clinical
38. Gabrieli, J.D.E., **Ghosh, S.S.**, Whitfield-Gabrieli, S. (2015). Prediction as a Humanitarian and Pragmatic Contribution from Human Cognitive Neuroscience. Neuron.
39. Gorgolewski KJ, Varoquaux G, Rivera G, Schwartz Y, Sochat VV, **Ghosh SS**, Maumet C, Nichols TE, Poline JB, Yarkoni T, Margulies DS, Poldrack RA (2015). NeuroVault.org: A repository for sharing unthresholded statistical maps, parcellations, and atlases of the human brain. Neuroimage.
40. Gorgolewski KJ, Varoquaux G, Rivera G, Schwarz Y, **Ghosh SS**, Maumet C, Sochat VV, Nichols TE, Poldrack RA, Poline JB, Yarkoni T, Margulies DS. (2015). NeuroVault.org: a web-based repository for collecting and sharing unthresholded statistical maps of the human brain. Front Neuroinform. 10;9:8.
41. Langs G, Golland P, **Ghosh SS.** (2015) Predicting Activation Across Individuals with Resting-State Functional Connectivity Based Multi-Atlas Label Fusion. Med Image Comput Comput Assist Interv. 9350:313-320.
42. Williamson JR, Quatieri TF, Helfer BS, Perricone J, **Ghosh SS**, Ciccarelli G, Mehta DD. (2015) Segment-dependent dynamics in predicting Parkinson's disease. In Sixteenth Annual Conference of the International Speech Communication Association.

43. Sitek KR, Cai S, Beal DS, Perkell JS, Guenther F and **Ghosh SS** (2016). Decreased cerebellar-orbitofrontal connectivity correlates with stuttering severity: Whole-brain functional and structural connectivity associations with persistent developmental stuttering. Front. Hum. Neurosci. 10:190. doi: 10.3389/fnhum.2016.00190
44. Whitfield-Gabrieli S, **Ghosh SS**, Nieto-Castanon A, Saygin Z, Doehrmann O, Chai XJ, Reynolds GO, Hofmann SG, Pollack MH, Gabrieli JD. (2016) Brain connectomics predict response to treatment in social anxiety disorder. Mol Psychiatry.
45. Allen GI, Amoroso N, Anghel C, Balagurusamy V, Bare CJ, Beaton D, Bellotti R, Bennett DA, Boehme K, Boutros PC, Caberlotto L, Caloian C, Campbell F, Chaibub Neto E, Chang YC, Chen B, Chen CY, Chien TY, Clark T, Das S, Davatzikos C, Deng J, Dillenberger D, Dobson RJB, Dong Q, Doshi J, Duma D, Errico R, Erus G, Everett E, Fardo DW, Friend SH, Fröhlich H, Gan J, George-Hyslop P, **Ghosh SS**, Glaab E, Green RC, Guan Y, Hong MY, Huang C, Hwang J, Ibrahim J, Inglese P, Jiang Q, Katsumata Y, Kauwe JSK, Klein A, Kong D, Krause R, Lalonde E, Lauria M, Lee E, Lin X, Liu Z, Livingstone J, Logsdon BA, Lovestone S, Lyappan A, Ma M, Malhotra A, Mangravite LM, Maxwell TJ, Merrill E, Nagorski J, Namasivayam A, Narayan M, Naz M, Newhouse SJ, Norman TC, Nurtdinov RN, Oyang YJ, Pawitan Y, Peng S, Peters MA, Piccolo SR, Praveen P, Priami C, Sabelnykova VY, Senger P, Shen X, Simmons A, Sotiras A, Stolovitzky G, Tangaro S, Tateo A, Tung YA, Tustison NJ, Varol E, Vradenburg G, Weiner MW, Xiao G, Xie L, Xie Y, Xu J, Yang H, Zhan X, Zhou Y, Zhu F, Zhu H, Zhu S. (In press) Crowdsourced estimation of cognitive decline and resilience in Alzheimer's disease, Alzheimer's & Dementia, Available online 11 April 2016, ISSN 1552-5260, http://dx.doi.org/10.1016/j.jalz.2016.02.006.
46. Cameron Craddock R, S Margulies D, Bellec P, Nolan Nichols B, Alcauter S, A Barrios F, Burnod Y, J Cannistraci C, Cohen-Adad J, De Leener B, Dery S, Downar J, Dunlop K, R Franco A, Seligman Froehlich C, J Gerber A, **Ghosh SS**, J Grabowski T, Hill S, Sólon Heinsfeld A, Matthew Hutchison R, Kundu P, R Laird A, Liew SL, J Lurie D, G McLaren D, Meneguzzi F, Mennes M, Mesmoudi S, O'Connor D, H Pasaye E, Peltier S, Poline JB, Prasad G, Fraga Pereira R, Quirion PO, Rokem A, S Saad Z, Shi Y, C Strother S, Toro R, Q Uddin L, D Van Horn J, W Van Meter J, C Welsh R, Xu T (2016). Brainhack: a collaborative workshop for the open neuroscience community. Gigascience. 5:16. doi: 10.1186/s13742-016-0121-x. eCollection 2016. PubMed PMID: 27042293; PubMed Central PMCID: PMC4818387.
47. Gorgolewski KJ, Auer T, Calhoun VD, Craddock RC, Das S, Duff EP, Flandin G, **Ghosh SS**, Glatard T, Halchenko YO, Handwerker DA, Hanke M, Keator D, Li X, Michael Z, Maumet C, Nichols BN, Nichols TE, Pellman J, Poline JB, Rokem A, Schaefer G, Sochat V, Triplett W, Turner JA, Varoquaux G, Poldrack RA. (2016) The brain imaging data structure, a format for organizing and describing outputs of neuroimaging experiments. Sci Data. 3:160044. doi: 10.1038/sdata.2016.44. PubMed PMID: 27326542.
48. Ciccarelli G, Quatieri TF, **Ghosh SS** (2016) Neurophysiological Vocal Source Modeling for Biomarkers of Disease. In Seventeenth Annual Conference of the International Speech Communication Association.
49. Margulies DS, **Ghosh SS**, Goulas A, Falkiewicz M, Huntenburg JM, Langs G, Bezgin G, Eickhoff SB, Castellanos FX, Petrides M, Jefferies E, Smallwood J (2016). Situating the default-mode network along a principal gradient of macroscale cortical organization. Proc Natl Acad Sci U S A. Nov 1;113(44):12574-12579. PubMed PMID: 27791099; PubMed Central PMCID: PMC5098630.
50. Maumet C, Auer T, Bowring A, Chen G, Das S, Flandin G, **Ghosh S**, Glatard T, Gorgolewski KJ, Helmer KG, Jenkinson M, Keator DB, Nichols BN, Poline JB, Reynolds R, Sochat V, Turner J, Nichols TE (2016). Sharing brain mapping statistical results with the neuroimaging data model. Sci Data. Dec 6;3:160102. doi: 10.1038/sdata.2016.102. PubMed PMID: 27922621; PubMed Central PMCID: PMC5139675.

51. Gorgolewski KJ, Auer T, Calhoun VD, Craddock RC, Das S, Duff EP, Flandin G, **Ghosh SS**, Glatard T, Halchenko YO, Handwerker DA, Hanke M, Keator D, Li X, Michael Z, Maumet C, Nichols BN, Nichols TE, Pellman J, Poline JB, Rokem A, Schaefer G, Sochat V, Triplett W, Turner JA, Varoquaux G, Poldrack RA. The brain imaging data structure, a format for organizing and describing outputs of neuroimaging experiments. Sci Data. 2016 Jun 21;3:160044. doi: 10.1038/sdata.2016.44. PubMed PMID: 27326542; PubMed Central PMCID: PMC4978148.
52. Perrachione TK, Del Tufo SN, Winter R, Murtagh J, Cyr A, Chang P, Halverson K, **Ghosh SS**, Christodoulou JA, Gabrieli JD. (2016) Dysfunction of Rapid Neural Adaptation in Dyslexia. Neuron. 92(6):1383-1397. doi: 10.1016/j.neuron.2016.11.020. PubMed PMID: 28009278; PubMed Central PMCID: PMC5226639.
53. Klein A, **Ghosh SS**, Bao FS, Giard J, Häme Y, Stavsky E, Lee N, Rossa B, Reuter M, Chaibub N, Keshavan A (2017) Mindboggling morphometry of human brains. PLOS Comp Biol.
54. Christodoulou JA, Murtagh J, Cyr A, Perrachione TK, Chang P, Halverson K, Hook P, Yendiki A, **Ghosh S**, Gabrieli JDE (2017). Relation of white-matter microstructure to reading ability and disability in beginning readers. Neuropsychology. 31(5):508-515. doi: 10.1037/neu0000243. Epub 2016 Mar 7. PubMed PMID: 26949926.
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63. Esteban O, Markiewicz CJ, Blair RW, Moodie CA, Isik AI, Erramuzpe A, Kent JD, Goncalves M, DuPre E, Snyder M, Oya H, **Ghosh SS**, Wright J, Durnez J, Poldrack RA, Gorgolewski KJ (2019). fMRIPrep: a robust preprocessing pipeline for functional MRI. Nat Methods.

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68. Wagley N, Perrachione TK, Ostrovskaya I, **Ghosh SS**, Saxler PK, Lymberis J, Wexler K, Gabrieli JDE, Kovelman I (2019) Persistent Neurobehavioral Markers of Developmental Morphosyntax Errors in Adults. J Speech Lang Hear Res. 2019 Dec 9;:1-12. doi: 10.1044/2019_JSLHR-19-00154.
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Neuroimaging of Depression and Anxiety study. Neuroimage Clin. 2020 Mar 19;26:102242. doi: 10.1016/j.nicl.2020.102242. [Epub ahead of print] PubMed PMID: 32339824; PubMed Central PMCID: PMC7184183.
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Presentations

The evolution of machine learning in brain imaging
Frontiers in Brain Imaging Symposium, University of Texas, Southwestern, 2020

What has working with brains, voice, and infrastructure technologies taught us about open science?
NeuroHub Seminar Series, McGill University, 2019

Retooling Psychiatry: How will we get there?
Computational Psychiatry Symposium, University of Iowa, 2019

Brains, Voice, and Technology: A multifaceted approach to mental health
Center for Depression, Anxiety, and Stress Research, McLean Hospital, 2019

Assistive Intelligence for Brain Health
World Medical Innovation Forum, 2019

Modeling Noise and Individual Variation
Organization for Human Brain Mapping, Singapore, 2018

Tools of the trade: From Data to Results in Neuroimaging
Neuroscience Information Framework, Online Webinar, 2018

Speaking one's mind: Vocal biomarkers of mental health
University of Washington, Seattle, August, 2018

A brain cartographer's quandary
Workshop on large-scale trends in cortical organization, Leipzig, Germany, 2017

Speaking one's mind: Vocal biomarkers of mental health
Technology in Psychiatry, Symposium, Boston, USA, 2017

The emerging informatics revolution in neuroscience
Boston Children's Hospital, Boston, USA, 2017
Center for Addiction Medicine, Massachusetts General Hospital, Boston, USA, 2017
Department of Biomedical Informatics, University of Pittsburgh, Pittsburgh, USA, 2017

Variance is the spice of reproducible research
Keynote: Annual Neuroinformatics Congress, Kuala Lampur, Malaysia, 2017

Applications of Machine Learning to Brain Imaging and Psychiatry
Computational Psychiatry Workshop, Satellite of Biological Psychiatry, San Diego, USA, 2017

Predicting Treatment Outcome in Social Anxiety Disorder and Tracking Major Depression and Parkinson State Using Behavioral Information
ACNP 55th Annual Meeting, Florida, USA, 2016

Standardized Provenance for Reproducible Dataflows in Neuroscience
Japan Neuroscience Society, Yokohama, Japan, 2016

Speaking one's mind: Vocal biomarkers of depression and Parkinson disease
Acoustical Society of America, Salt Lake City, USA, 2016

Predicting Treatment Outcome in Anxiety and Depression
McLean Hospital, Belmont, USA, 2015
Organization for Human Brain Mapping, Hawaii, USA, 2015

Linking Knowledge and Reproducible Research Via Standardized Provenance Models
Workshop at the Bernstein Computational Neuroscience conference, Heidelberg, Germany, 2015
Tools for Integrating and Planning Research in Neuroscience, UCLA, Los Angeles, USA, 2014

A Neuroinformatics Bridge to Personalized Healthcare
Boston University, Hearing research seminar, Boston, USA, 2014
Vanderbilt University, Nashville, USA, 2014

Enabling knowledge generation and reproducible research by embedding provenance models in metadata stores
Neuroinformatics Congress, Stochkholm, Sweden, 2013

Python Tools for Reproducible Research in Brain Imaging
PyData conference, Boston, USA, 2013

Nipype: Opensource platform for unified and replicable interaction with existing neuroimaging tools
Brigham and Womens Hospital, Boston, USA, 2009

Massachusetts General Hospital, Boston, USA, 2010, 2012, 2013
Radiology, U of Washington, Seattle, USA, 2011,
PICSL, U of Pennsylvania, Philadelphia, USA, 2011
Scientific Python Conference in India, Hyderabad, India, 2010
INCF Datasharing Workshop, Quebec, Canada, 2011
Python in Neuroscience Workshop, Paris, France, 2011

Leveraging scientific computation to bridge neuroimaging and clinical applications
Radiology, U of Pennsylvania, Philadelphia, USA, 2011
Haskins Laboratories, New Haven, Connecticut, USA 2012

Datasharing and reproducible research: Barriers and solutions
Janelia Farm Bioimage Informatics II Conference, Washington DC, USA, 2011
University de Montreal, Montreal, Canada, 2013

Using high-resolution fMRI to identify individual-specific speech motor regions
Surgical Brain-Mapping laboratory, Brigham and Womens Hospital, Boston, USA, 2010

Region of interest analysis of functional Magnetic Resonance Imaging data
New York State Psychiatric Institute, Columbia University, New York, USA, 2007
Singapore General Hospital, Singapore, Singapore, 2007

Exploring speech motor control through computational modeling and neuroimaging
Center for Life Sciences, National University of Singapore, Singapore, 2007

Research contracts and grants

Current

2019 – 2024	DANDI: Distributed Archives for Neurophysiology Data Integration NIH/NIMH/R24 MH117295 PI (co-PI - Yaroslaw Halchenko, Dartmouth College)
2019 - 2021	The Neuroimaging Data Model: FAIR descriptors of Brain Initiative Imaging Experiments (PI: David Keator, University of California, Irvine) National Institute of Mental Health, R01 Site PI
2020 – 2021	Realtime speech modification apparatus for enhancing fluency in people who stutter MIT McGovern Institute Neurotechnology Program Co-PI with Tod Machover, Media Lab, MIT
2019 – 2020	Tracking Alzheimer's Disease from Retinal OCT Images using Deep Learning Foundation for Ophthalmology Research and Education International, Inc. PI
2016 – 2020	Nipype: Dataflows for Reproducible Biomedical Research NIH/NIBIB/R01 EB020740 PI
2016 – 2021	ReproNim: Center for Reproducible Neuroimaging Computation NIH/NIBIB/P41 EB019936 (PI: David Kennedy, UMass Medical School) Director: Technology, Research and Development Project 2

Member of administrative and training cores
Site PI

2016 – 2021 NeuroScout: A cloud-based platform for rapid re-analysis of naturalistic fMRI datasets
NIH/NIMH/R01 MH109682 (PI: Tal Yarkoni, UTexas, Austin)
Site PI

Past

2008 – 2010 Dissemination of cross-platform software for artifact detection and region of interest analysis of fMRI data
NIH/NIBIB/R03 EB008673
Co-PI with Susan Whitfield-Gabrieli, McGovern Institute for Brain Research, MIT

2012 – 2014 Learned regulation of the limbic network via combined EEG and fMRI (PI: John Gabrieli)
NIH/NIMH/R21 MH092564
Investigator

2012 – 2015 MURFI: An Optimized Platform for Realtime fMRI Neurofeedback
MIT McGovern Institute Neurotechnology Program
Co-PI with John Gabrieli (MIT), Eden Evins (MGH)

2011 – 2016 Using Real-Time Functional Brain Imaging and Computer Training To Enhance Recovery from Traumatic Brain Injury (TBI) (PI: John Gabrieli)
DOD/Clinical trial award PT100120
Investigator

2015 – 2017 Genetic Determinants of Schizophrenia Intermediate Phenotypes
NIH/NIMH/R01 (Supplement) MH092380 (PI: Tracey Petryshen, MGH)
Site PI

2012 – 2017 A randomized controlled trial of intranasal oxytocin as an adjunct to behavioral therapy for autism spectrum disorder (PI: John Gabrieli, MGH)
DOD/Clinical Trial Award AR110329
Site PI

2014 – 2017 Brain basis for voice-based tracking of neurological disorders
MIT McGovern Institute Neurotechnology Program
MIT Lincoln Lab Funds
Co-PI with Tom Quatieri, MIT Lincoln Laboratory, MIT

2012 – 2018 Blast Induced Traumatic Brain Injury
DOD/Institute for Soldier Nanotechnologies
Investigator

2015 – 2020 Connectomes related to anxiety and depression in adolescents.
NIH/NIMH/U01 MH108168 (PI: Susan Whitfield-Gabrieli, John Gabrieli, MIT)
Informatics Lead