Joshua T. Vogelstein

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I am currently an Assistant Professor of Biomedical Engineering in the Whiting School of Engineering at Johns Hopkins University, where I co-direct the NeuroData lab, whose mission is to flourish together by extending and fusing statistical machine learning and big data science to address the most important brain science and mental health questions of our time. As of February 2019, according to Google Scholar, I have over 4,100 citations and an h-index of 28.

Our website, neurodata.io, has the most up to date information regarding our team's publications, talks, posters, awards, press, funding, and blog.

Education

2003 – 2009	**Ph.D in Neuroscience**, *Johns Hopkins School of Medicine, Supervised by Eric Young*, Dissertation: OOPSI: a family of optical spike inference algorithms for inferring neural connectivity from population calcium imaging .
2009 – 2009	**M.S. in Applied Mathematics & Statistics**, *Johns Hopkins University*.
1998 – 2002	**B.A. in Biomedical Engineering**, *Washington University, St. Louis*.
06/08 – 07/08	**Molecular Biology Summer Workshop**, *Smith College, Mass, USA*.
07/08 – 07/08	**Advanced Techniques in Molecular Neuroscience**, *Cold Spring Harbor, New York, USA*.
06/05 – 07/05	**Imaging Structure and Function of the Nervous System (audited)**, *Cold Spring Harbor, New York, USA*.
06/04 – 07/04	**Advanced Course in Computational Neuroscience**, *Obidos, Portugal*.

Positions Held

Academic Positions

08/14 – now	**Assistant Professor**, *Department of Biomedical Engineering*, Johns Hopkins University (JHU).
08/14 – now	**Core Faculty**, *Institute for Computational Medicine & Center for Imaging Science (CIS)*.

Academic Affiliations

10/15 – now	**Steering Committee Member & Associate Member**, *Kavli Neuroscience Discovery Institute*.
08/15 – now	**Joint Appointment**, *Department of Applied Mathematics and Statistics*.
08/14 – now	**Joint Appointment**, *Department of Neuroscience*.
08/14 – now	**Joint Appointment**, *Department of Computer Science*.
08/14 – now	**Assistant Research Faculty**, *Human Language Technology Center of Excellence*.
10/12 – now	**Affiliated Faculty**, *Institute for Data Intensive Engineering and Sciences*.

Awards & Honors

2014	**F1000 Prime Recommended**, *Vogelstein et al. (2014)*.
2013	**Spotlight**, *Neural Information Processing Systems (NIPS)*.
2011	**Trainee Abstract Award**, *Organization for Human Brain Mapping*.
2008	**Spotlight**, *Computational and Systems Neuroscience (CoSyNe)*.
2002	**Dean's List**, *Washington University*.

Publications

Peer-Reviewed Journal Publications

P1   J. T. Vogelstein, E. W. Bridgeford, B. D. Pedigo, J. Chung, K. Levin, B. Mensh, and C. E. Priebe, "Connectal coding: Discovering the structures linking cognitive phenotypes to individual histories," *Current Opinion in Neurobiology*, april 2019. [Online]. Available: https://doi.org/10.1016/j.conb.2019.04.005

P2   C. E. Priebe, Y. Park, J. T. Vogelstein, J. M. Conroy, V. Lyzinskic, M. Tang, A. Athreya, J. Cape, and E. Bridgeford, "On a 'two truths' phenomenon in spectral graph clustering," *PNAS*, Feb 2019. [Online]. Available: https://www.pnas.org/content/early/2019/03/07/1814462116.short

P3   J. J. Son, J. C. Clucas, C. White, J. T. Vogelstein, M. P. Milham, and A. Klein, "Thermal sensors improve wrist-worn position tracking," *npj digital medicine*, Feb 2019. [Online]. Available: https://doi.org/10.1038/s41746-019-0092-2

P4   C. Shen, C. E. Priebe, M. Maggioni, Q. Wang, and J. T. Vogelstein, "Discovering and Deciphering Relationships Across Disparate Data Modalities," *eLife*, Jan 2019. [Online]. Available: https://elifesciences.org/articles/41690

P5   R. Tang, M. Ketcha, A. Badea, E. D. Calabrese, D. S. Margulies, J. T. Vogelstein, C. E. Priebe, and D. L. Sussman, "Connectome smoothing via low-rank approximations," *Transactions in Medical Imaging*, Dec 2018. [Online]. Available: https://ieeexplore.ieee.org/document/8570772

P6   C. Shen, C. E. Priebe, and J. T. Vogelstein, "From Distance Correlation to Multiscale Graph Correlation," *Journal of the American Statistical Association*, Oct 2018. [Online]. Available: https://www.tandfonline.com/doi/full/10.1080/01621459.2018.1543125

P7   J. T. Vogelstein, R. Burns, E. Perlman, A. Baden, W. G. Roncal, B. Falk, V. Chandrashekhar, F. Collman, S. Seshamani, J. Patsolic, K. Lillaney, M. Kazhdan, R. Hider, D. Pryor, J. Matelsky, T. Gion, P. Manavalan, B. Wester, M. Chevillet, E. T. Trautman, K. Khairy, E. Bridgeford, D. M. Kleissas, D. J. Tward, A. K. Crow, M. A. Wright, M. I. Miller, S. J. Smith, R. J. Vogelstein, and K. Deisseroth, "A Community-Developed Open-Source Computational Ecosystem for Big Neuro Data," *Nature Methods*, October 2018. [Online]. Available: https://www.nature.com/articles/s41592-018-0181-1

P8   Y. Lee, C. Shen, and J. T. Vogelstein, "Network Dependence Testing via Diffusion Maps and Distance-Based Correlations," *Biometrika*, Aug 2018. [Online]. Available: http://arxiv.org/abs/1703.10136

P9   A. Athreya, D. E. Fishkind, M. Tang, C. E. Priebe, Y. Park, J. T. Vogelstein, K. Levin, V. Lyzinski, Y. Qin, and D. L. Sussman, "Statistical Inference on Random Dot Product Graphs: a Survey," *Journal of Machine Learning Research*, vol. 18, May 2018. [Online]. Available: http://jmlr.org/papers/v18/17-448.html

P10   J. D. Cohen, L. Li, Y. Wang, C. Thoburn, B. Afsari, L. Danilova, C. Douville, A. A. Javed, F. Wong, A. Mattox, R. H. Hruban, C. L. Wolfgang, M. G. Goggins, M. D. Molin, T.-L. Wang, R. Roden, A. P. Klein, J. Ptak, L. Dobbyn, J. Schaefer, N. Silliman, M. Popoli, J. T. Vogelstein, J. D. Browne, R. E. Schoen, R. E. Brand, J. Tie, P. Gibbs, H.-L. Wong, A. S. Mansfield, J. Jen, S. M. Hanash, M. Falconi, P. J. Allen, S. Zhou, C. Bettegowda, L. Diaz, C. Tomasetti, K. W. Kinzler, B. Vogelstein, A. M. Lennon, and N. Papadopoulos, "Detection and localization of surgically resectable cancers with a multi- analyte blood test," *Science*, vol. 3247, feb 2018. [Online]. Available: http://science.sciencemag.org/content/early/2018/01/17/science.aar3247

P11   D. Durante, D. B. Dunson, and J. T. Vogelstein, "Rejoinder: Nonparametric Bayes Modeling of Populations of Networks," *Journal of the American Statistical Association*, vol. 112, oct 2017. [Online]. Available: https://www.tandfonline.com/doi/full/10.1080/01621459.2017.1395643

P12 S. Chen, K. Liu, Y. Yang, Y. Xu, S. Lee, M. Lindquist, B. S. Caffo, and J. T. Vogelstein, "An M-estimator for reduced-rank system identification," *Pattern Recognition Letters*, vol. 86, jan 2017. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S0167865516303671

P13 N. Binkiewicz, J. T. Vogelstein, and K. Rohe, "Covariate-assisted spectral clustering," *Biometrika*, vol. 104, 2017. [Online]. Available: http://arxiv.org/abs/1411.2158

P14 D. Durante, D. B. Dunson, and J. T. Vogelstein, "Nonparametric Bayes Modeling of Populations of Networks," *Journal of the American Statistical Association*, vol. 112, 2017. [Online]. Available: https://doi.org/10.1080/01621459.2017.1395643

P15 D. G. C. Hildebrand, M. Cicconet, R. M. Torres, W. Choi, T. M. Quan, J. Moon, A. W. Wetzel, A. S. Champion, B. J. Graham, O. Randlett, and Others, "Whole-brain serial-section electron microscopy in larval zebrafish," *Nature*, vol. 545, 2017.

P16 C. Shen, J. T. Vogelstein, and C. E. Priebe, "Manifold matching using shortest-path distance and joint neighborhood selection," *Pattern Recognition Letters*, vol. 92, 2017. [Online]. Available: http://www.sciencedirect.com/science/article/pii/S016786551730106X

P17 A. K. Simhal, C. Aguerrebere, F. Collman, J. T. Vogelstein, K. D. Micheva, R. J. Weinberg, S. J. Smith, and G. Sapiro, "Probabilistic fluorescence-based synapse detection," *PLoS Computational Biology*, vol. 13, 2017. [Online]. Available: https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1005493&rev=2

P18 Q. Wang, M. Zhang, T. Tomita, J. T. Vogelstein, S. Zhou, N. Papadopoulos, K. W. Kinzler, and B. Vogelstein, "Selected reaction monitoring approach for validating peptide biomarkers," *Proceedings of the National Academy of Sciences*, 2017. [Online]. Available: http://www.pnas.org/content/114/51/13519.short

P19 D. Zheng, D. Mhembere, V. Lyzinski, J. T. Vogelstein, C. E. Priebe, and R. Burns, "Semi-External Memory Sparse Matrix Multiplication for Billion-Node Graphs," *IEEE Transactions on Parallel and Distributed Systems*, vol. 28, 2017. [Online]. Available: https://ieeexplore.ieee.org/abstract/document/7593270

P20 D. Koutra, N. Shah, J. T. Vogelstein, B. Gallagher, and C. Faloutsos, "Deltacon: Principled massive-graph similarity function with attribution," *ACM Transactions on Knowledge Discovery from Data*, vol. 10, feb 2016. [Online]. Available: http://doi.acm.org/10.1145/2824443

P21 V. Lyzinski, D. E. Fishkind, M. Fiori, J. T. Vogelstein, C. E. Priebe, and G. Sapiro, "Graph Matching: Relax at Your Own Risk," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 38, jan 2016.

P22 R. D. Airan, J. T. Vogelstein, J. J. Pillai, B. Caffo, J. J. Pekar, and H. I. Sair, "Factors affecting characterization and localization of interindividual differences in functional connectivity using MRI," *Human Brain Mapping*, vol. 37, 2016. [Online]. Available: http://dx.doi.org/10.1002/hbm.23150

P23 L. Chen, C. Shen, J. T. Vogelstein, and C. E. Priebe, "Robust Vertex Classification," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 38, 2016. [Online]. Available: http://dx.doi.org/10.1109/TPAMI.2015.2456913

P24 E. L. Dyer, W. G. Roncal, H. L. Fernandes, D. Gürsoy, V. De Andrade, R. Vescovi, K. Fezzaa, X. Xiao, J. T. Vogelstein, C. Jacobsen, K. P. Körding, and N. Kasthuri, "Quantifying mesoscale neuroanatomy using x-ray microtomography," *eNeuro*, vol. 4, 2016. [Online]. Available: https://www.eneuro.org/content/4/5/ENEURO.0195-17.2017.long

P25 C. E. Priebe, D. L. Sussman, M. Tang, and J. T. Vogelstein, "Statistical Inference on Errorfully Observed Graphs," *Journal of Computational and Graphical Statistics*, vol. 24, oct 2015. [Online]. Available: http://www.tandfonline.com/doi/full/10.1080/10618600.2014.951049

P26   L. Chen, J. T. Vogelstein, V. Lyzinski, and C. E. Priebe, "A Joint Graph Inference Case Study: the C.elegans Chemical and Electrical Connectomes," *Worm*, vol. 5, 2015. [Online]. Available: http://arxiv.org/abs/1507.08376

P27   K. M. Harris, J. Spacek, M. E. Bell, P. H. Parker, L. F. Lindsey, A. D. Baden, J. T. Vogelstein, and R. Burns, "A resource from 3D electron microscopy of hippocampal neuropil for user training and tool development," *Scientific Data*, vol. 2, 2015.

P28   N. Kasthuri, K. J. Hayworth, D. R. Berger, R. L. Schalek, J. A. Conchello, S. Knowles-Barley, D. Lee, A. Vázquez-Reina, V. Kaynig, T. R. Jones, M. Roberts, J. L. Morgan, J. C. Tapia, H. S. Seung, W. G. Roncal, J. T. Vogelstein, R. Burns, D. L. Sussman, C. E. Priebe, H. Pfister, and J. W. Lichtman, "Saturated Reconstruction of a Volume of Neocortex," *Cell*, vol. 162, 2015.

P29   V. Lyzinski, D. L. Sussman, D. E. Fishkind, H. Pao, L. Chen, J. T. Vogelstein, Y. Park, and C. E. Priebe, "Spectral clustering for divide-and-conquer graph matching," *Parallel Computing*, vol. 47, 2015. [Online]. Available: http://arxiv.org/abs/1310.1297

P30   J. T. Vogelstein, J. M. Conroy, V. Lyzinski, L. J. Podrazik, S. G. Kratzer, E. T. Harley, D. E. Fishkind, R. J. Vogelstein, and C. E. Priebe, "Fast Approximate Quadratic programming for graph matching," *PLoS ONE*, vol. 10, 2015. [Online]. Available: http://dx.doi.org/10.1371/journal.pone.0121002

P31   J. T. Vogelstein and C. E. Priebe, "Shuffled Graph Classification: Theory and Connectome Applications," *Journal of Classification*, vol. 32, 2015. [Online]. Available: http://arxiv.org/abs/1112.5506

P32   W. R. Gray Roncal, D. M. Kleissas, J. T. Vogelstein, P. Manavalan, K. Lillaney, M. Pekala, R. Burns, R. J. Vogelstein, C. E. Priebe, M. A. Chevillet, and G. D. Hager, "An automated images-to-graphs framework for high resolution connectomics," *Frontiers in Neuroinformatics*, vol. 9, 2015. [Online]. Available: http://journal.frontiersin.org/article/10.3389/fninf.2015.00020

P33   D. E. Carlson, J. T. Vogelstein, Qisong Wu, Wenzhao Lian, Mingyuan Zhou, C. R. Stoetzner, D. Kipke, D. Weber, D. B. Dunson, and L. Carin, "Multichannel Electrophysiological Spike Sorting via Joint Dictionary Learning and Mixture Modeling," *IEEE Transactions on Biomedical Engineering*, vol. 61, jan 2014. [Online]. Available: http://ieeexplore.ieee.org/document/6571240/

P34   E. M. Sweeney, J. T. Vogelstein, J. L. Cuzzocreo, P. A. Calabresi, D. S. Reich, C. M. Crainiceanu, and R. T. Shinohara, "A comparison of supervised machine learning algorithms and feature vectors for MS lesion segmentation using multimodal structural MRI," *PLoS ONE*, vol. 9, 2014.

P35   J. T. Vogelstein, Y. Park, T. Ohyama, R. A. Kerr, J. W. Truman, C. E. Priebe, and M. Zlatic, "Discovery of Brainwide Neural-Behavioral Maps via Multiscale Unsupervised Structure Learning," *Science*, vol. 344, 2014. [Online]. Available: https://science.sciencemag.org/content/344/6182/386

P36   N. C. Weiler, F. Collman, J. T. Vogelstein, R. Burns, and S. J. Smith, "Synaptic molecular imaging in spared and deprived columns of mouse barrel cortex with array tomography," *Scientific Data*, vol. 1, 2014. [Online]. Available: http://www.nature.com/articles/sdata201446

P37   R. C. Craddock, S. Jbabdi, C. G. Yan, J. T. Vogelstein, F. X. Castellanos, A. Di Martino, C. Kelly, K. Heberlein, S. Colcombe, and M. P. Milham, "Imaging human connectomes at the macroscale," *Nature Methods*, vol. 10, 2013. [Online]. Available: https://www.researchgate.net/publication/236976801%5C_Imaging%5C_human%5C_connectomes%5C_at%5C_the%5C_macroscale

P38   D. Dai, H. He, J. T. Vogelstein, and Z. Hou, "Accurate prediction of AD patients using cortical thickness networks," *Machine Vision and Applications*, vol. 24, 2013. [Online]. Available: https://doi.org/10.1007/s00138-012-0462-0

P39 C. E. Priebe, J. Vogelstein, and D. Bock, "Optimizing the quantity/quality trade-off in connectome inference," *Communications in Statistics - Theory and Methods*, vol. 42, 2013. [Online]. Available: https://www.researchgate.net/publication/51941784%5C_Optimizing%5C_the%5C_quantityquality%5C_trade-off%5C_in%5C_connectome%5C_inference

P40 J. T. Vogelstein, W. G. Roncal, R. Jacob Vogelstein, and C. E. Priebe, "Graph classification using signal-subgraphs: Applications in statistical connectomics," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 35, 2013. [Online]. Available: Subgraphs%5C_Applications%5C_in%5C_Statistical%5C_Connectomics

P41 W. R. Gray, J. A. Bogovic, J. T. Vogelstein, B. A. Landman, J. L. Prince, and R. J. Vogelstein, "Magnetic Resonance Connectome Automated Pipeline: An Overview," *IEEE Pulse*, vol. 3, mar 2012. [Online]. Available: http://ieeexplore.ieee.org/document/6173097/

P42 D. E. Fishkind, D. L. Sussman, M. Tang, J. T. Vogelstein, and C. E. Priebe, "Consistent adjacency-spectral partitioning for the stochastic block model when the model parameters are unknown," *SIAM Journal on Matrix Analysis and Applications*, vol. 34, 2012. [Online]. Available: http://arxiv.org/abs/1205.0309

P43 N. J. Roberts, J. T. Vogelstein, G. Parmigiani, K. W. Kinzler, B. Vogelstein, and V. E. Velculescu, "The predictive capacity of personal genome sequencing," *Science Translational Medicine*, vol. 4, 2012. [Online]. Available: https://www.researchgate.net/publication/223985064%5C_The%5C_predictive%5C_capacity%5C_of%5C_personal%5C_genome%5C_sequencing

P44 S. B. Hofer, H. Ko, B. Pichler, J. Vogelstein, H. Ros, H. Zeng, E. Lein, N. A. Lesica, and T. D. Mrsic-Flogel, "Differential connectivity and response dynamics of excitatory and inhibitory neurons in visual cortex," *Nature Neuroscience*, vol. 14, 2011.

P45 Y. Mishchencko, J. T. Vogelstein, and L. Paninski, "A Bayesian approach for inferring neuronal conectivity from calcium fluorescent imaging data," *The annals of applied statistics*, vol. 5, 2011. [Online]. Available: http://www.jstor.org/stable/23024850%5Cnhttp://about.jstor.org/terms

P46 J. T. Vogelstein, R. J. Vogelstein, and C. E. Priebe, "Are mental properties supervenient on brain properties?" *Scientific Reports*, vol. 1, 2011. [Online]. Available: https://www.researchgate.net/publication/45889003%5C_Are%5C_mental%5C_properties%5C_supervenient%5C_on%5C_brain%5C_properties

P47 L. Paninski, Y. Ahmadian, D. G. Ferreira, S. Koyama, K. Rahnama Rad, M. Vidne, J. Vogelstein, and W. Wu, "A new look at state-space models for neural data," *Journal of Computational Neuroscience*, vol. 29, 2010. [Online]. Available: https://www.researchgate.net/publication/26712056%5C_A%5C_new%5C_look%5C_at%5C_state-space%5C_models%5C_for%5C_neural%5C_data?ev=prf%5C_pub

P48 J. T. Vogelstein, A. M. Packer, T. A. Machado, T. Sippy, B. Babadi, R. Yuste, and L. Paninski, "Fast non-negative deconvolution for spike train inference from population calcium imaging," *Journal of Neurophysiology*, vol. 104, 2009. [Online]. Available: http://arxiv.org/abs/0912.1637%0Ahttp://dx.doi.org/10.1152/jn.01073.2009

P49 J. T. Vogelstein, B. O. Watson, A. M. Packer, R. Yuste, B. Jedynak, and L. Paninskik, "Spike inference from calcium imaging using sequential Monte Carlo methods," *Biophysical Journal*, vol. 97, 2009. [Online]. Available: https://www.researchgate.net/publication/26683205%5C_Spike%5C_inference%5C_from%5C_calcium%5C_imaging%5C_using%5C_sequential%5C_Monte%5C_Carlo%5C_methods

P50 R. J. Vogelstein, U. Mallik, J. T. Vogelstein, and G. Cauwenberghs, "Dynamically reconfigurable silicon array of spiking neurons with conductance-based synapses," *IEEE Transactions on Neural Networks*, vol. 18, 2007. [Online]. Available: https://www.researchgate.net/publication/6527229%5C_Dynamically%5C_

reconfigurable%5C_silicon%5C_array%5C_of%5C_spiking%5C_neurons%5C_with%5C_
conductance-based%5C_synapses?ev=prf%5C_pub

P51 J. T. Vogelstein, L. H. Snyder, and D. E. Angelaki, "Accuracy of saccades to remembered targets as a function of body orientation in space." *Journal of neurophysiology*, vol. 90, 2003. [Online]. Available: https://www.researchgate.net/publication/10676961%5C_Accuracy%5C_of%5C_saccades%5C_to%5C_remembered%5C_targets%5C_as%5C_a%5C_function%5C_of%5C_body%5C_orientation%5C_in%5C_space

Talks

Invited Talks

T1 *Inferring spike trains from Calcium Imaging*, Redwood Center for Theoretical Neuroscience, University of California, Berkeley, 2008.

T2 *Inferring spike trains from Calcium Imaging*, Cambridge University, Gatsby Unit, and University College London, 2008.

T3 *Inferring Spike Trains Given Calcium-Sensitive Fluorescence Observations*, Statistical Analysis of Neural Data, 2008.

T4 *Towards Inference and Analaysis of Neural Circuits Inferred from Population Calcium Imaging*, Guest Lecture in Schnitzer Lab, 2009.

T5 *Neurocognitive Graph Theory*, national Security Agency, 2009.

T6 *Towards Inferring Neural Circuits from Calcium Imaging*, Guest Lecture in Yuste Lab, 2009.

T7 *OOPSI: A Family of Optimal OPtical Spike Inference Algorithms for Inferring Neural Connectivity from Population Calcium Imaging*, Dissertation Defense, 2009.

T8 *Sequential Monte Carlo in Neuroscience*, SAMSI Program on Sequential Monte Carlo, Tracking Working Group, 2009.

T9 *Consistent Graph Classification*, Guest Lecture in Deisseroth Lab, Stanford University, 2011.

T10 *Connectome Classification: Statistical Graph Theoretic Methods for Analysis of MR-Connectome Data*, Organization for Human Brain Mapping, 2011.

T11 *Consistent Connectome Classification*, Math/Bio Seminar, Duke University, 2011.

T12 *Statistical Connectomics*, Harvard University Connectomics Labs, 2011.

T13 *Once we get connectomes, what the %#* are we going to do with them?*, Krasnow Institute for Advanced Study at George Mason Univeristy, 2011.

T14 *Once we get connectomes, what the %#* are we going to do with them?*, Institute of Neuroinformatics, 2011.

T15 *What can Translational neuroimaging Research do for Clinical Practice*, Child Mind Institute, 2011.

T16 *Decision Theoretic Approach to Statistical Inference*, guest Lecture in Current Topics in Machine Learning, Johns Hopkins University, 2012.

T17 *BIG NEURO*, Theory and Neurobiology, Duke University, 2012.

T18 *Open Connectome Project*, Academic Medical Center, Amsterdam, 2012.

T19 *Statistical Models and Inference for big Brain-Graphs*, NIPS Workshop on Acquiring and analyzing the activity of large neural ensembles, 2013.

T20 *Open Problems in Neuropsychiatry*, Data Seminar, Duke University, 2013.

T21   *Beyond Little Neuroscience*, Beyond Optogenetics workshop at Cosyne, 2013.

T22   *Statistical Inference on Graphs*, University of Michigan, 2013.

T23   *Statistical Inference on Graphs*, Scientific Computing Institute, University of Utah, 2013.

T24   *Big Statistics for Brain Sciences*, Baylor College of Medicine, Department of Neuroscience, May 2014.

T25   *Top Challenges of Big Data Neuroscience*, BRAIN Initiative Workshop, Dec 2014.

T26   *Big (Neuro) Statistics*, Kavli Salon, 2014. Big Data: Practice Across Disciplines.

T27   *big time (series data in neuroscience)*, figshare, 2015.

T28   *Research Computing Support for Neuroscience and Other Life Sciences*, CASC, 2015.

T29   *Open Connectome Project: Lowering the Barrier to Entry of Big Data Neuroscience*, Institute for Computational Medicine at Johns Hopkins University, 2015.

T30   *Law of Large Graphs*, DARPA Graphs, 2015.

T31   *From RAGs to Riches: Utilizing Richly Attributed Graphs to Reason from Heterogeneous Data*, SIMPLEX Kickoff, 2015.

T32   *Opportunities and Challenges in Big Data Neuroscience*, DoE, 2015.

T33   *Special Symposium: Neuroscience in the 21st Century*, Kavli, 2015.

T34   *Local Distance Correlation for Testing Independence*, Temple University, November 2015.

T35   *Open Source Platform for Heterogenous Brain Data*, figshare, 2015.

T36   *Spike inference from calcium imaging using sequential Monte Carlo methods*, AMSI Program on Sequential Monte Carlo, 2015.

T37   *NeuroData: Enabling Terascale Neuroscience for Everyone*, Keystone Symposia: State of the Brain, 2016.

T38   *NeuroData:Enabling Terascale Neuroscience*, JHU Kavli Neuroscience Discovery Institute, 2016.

T39   *The International Brain Station (TIBS)*, Kavli Foundation, 2016.

T40   *NeuroData 2016*, NeuroData Lab Retreat, 2016.

T41   *Global Brain Workshop 2016*, Global Brain Workshop NSF+JHU at Kavli, 2016.

T42   *Global Brain Workshop 2016*, Kavli Institute for Neuroscience Discovery Center for Imaging Science @ JHU, 2016.

T43   *Global Brain Workshop 2016*, Kavli Neuroscience Discovery Institute & Center for Imaging Science, 2016.

T44   *NeuroData:Enabling Terascale Neuroscience*, Kavli Neuroscience Discovery Institute & Center for Imaging Science, 2016.

T45   *Learning a Data-Driven Nosology:Progress, Challenges & Opportunities*, Kavli Neuroscience Discovery Institute & Center for Imaging Science, 2016.

T46   *Multiscale Generalized Correlation*, Joint Statistical Meeting, August 2016.

T47   *Challenges and Opportunities in Big Data for Neuroscientists*, Society for Neuroscience: DC Metro Area Chapter Keynote Address, 2017.

T48   *Discovering Relationships and their Geometry Across Disparate Data Modalities*, Stanford, August 2017.

T49   *Network Dependence Testing via Diffusion Maps and Distance-Based Correlations*, Joint Statistical Meetings, 2017.

T50   *NeuroData*, 2017.

T51   *The International Brain Station (TIBS)*, JHU BME and Tsinghua University, 2017.

T52   *Opportunities and Challenges in Big Data Neuroscience*, Society for Neuroscience, 2017.

T53   *Connectome Coding*, Schmidt Sciences, 2017.

T54   *NeuroStorm*, Global Brain Workshop 2 JHU, 2017.

T55   *knor: a NUMA-Optimized In-Memory, Distributed and Semi-External-Memory k-means library*, HPDC, June 2017.

T56   *knor: K-means NUMA Optimized Routines Library*, High-Performance Parallel and Distributed Computing, 2017.

T57   *ROFLMAO: Robust Oblique Forests with Linear Matrix Operations*, SIAM International Conference on Data Mining 2017, 2017.

T58   *Science in the Cloud (SIC): A use-case in MRI Connectomics*, Open Science Special Interest Group, 2017.

T59   *A Community-Developed Open-Source Computational Ecosystem for Big Neuro Data*, Princeton, Aug 2018.

T60   *Connectome Coding*, Society for Neuroscience, november 2018.

T61   *Connectome Coding: what is it, how do we do it, and why do we care?*, Data science in Neuroscience Symposium, June 2018.

T62   *Discovering Relationships and their Geometry Across Disparate Data Modalities*, Yale, january 2018.

T63   *The Exact Equivalence of Distance and Kernel Methods for Hypothesis Testing*, Joint Statistical Meeting, August 2018.

T64   *A High-Throughput Pipeline Identifies Robust Connectomes but Troublesome Variability*, Organization of Human Brain Mapping, july 2018.

T65   *Data Intensive Brain Science*, Kavli Neuroscience Discovery Institute, June 2018.

T66   *Engineering the Future of Medicine: Data Intensive Biomedical Science*, Johns Hopkins University Biomedical Engineering, March 2018.

T67   *Lifelong Learning Forests*, Darpa L2M PI Meeting, June 2018.

T68   *NeuroNex + Stanford*, NeuroNex-Stanford, July 2018.

T69   *Multiscale Graph Correlation: A Knowledge Representation System for Discovering Latent Geometric Structure*, DARPA SIMPLEX PI Review Meeting, august 2018.

T70   *NeuroData: A Community-developed open-source computational ecosystem for big neuro data*, NeuroNex, october 2018.

T71   *NeuroData: Embracing Open Source for Big Data Neuroscience*, NSF NeuroNex Workshop on Super 3DEM, july 2018.

T72   *Using Big Data Science to Understand What Goes On in our Heads*, SOHOP Faculty Spotlight, Apr 2018.

T73 *Big Biomedical Data Science*, Sol Goldman International Conference, April 2019.

T74 *Big Data and the Life Sciences*, Sloan Foundation, May 2019.

T75 *Biomedical Big Data and Data Science*, JHU BME, February 2019.

T76 *Brain mapping tools for neuroscience research*, NeuroNex, May 2019.

T77 *Connectal Coding*, Dipy Workshop, March 2019.

T78 *Data Science Core*, Harvard University, July 2019.

T79 *Forest Packing: Fast Parallel, Decision Forests*, SIAM International Conference on Data Mining, May 2019.

T80 *Journey to Here*, JHU BMES talks, April 2019.

T81 *Lifelong Learning Forests*, L2M, March 2019.

T82 *NeuroData (Science)*, Kavli, April 2019.

T83 *NeuroData Tools*, NeuroData Hackashop, March 2019.

T84 *Open Access to the Brain: a Computer "Connectome" Links Brain Images in Fine Detail*, JHM Boot Camp, June 2019.

T85 *Statistical Methods for Population of Connectomes*, Organization of Human Brain Mapping, June 2019.

T86 *A Theory and Practice of the Lifelong Learnable*, L2M, September 2019.

T87 NIPS workshop on Philosophy and Machine Learning. *Are mental properties supervenient on brain properties*, 2011.

T88 Joshua T Vogelstein. From RAGs to Riches: Utilizing Richly Attributed Graphs to Reason from Heterogeneous Data: Part 1. DARPA SIMPLEX PI Meeting, 2015.

T89 Joshua T Vogelstein. From RAGs to Riches: Utilizing Richly Attributed Graphs to Reason from Heterogeneous Data: Part 2. DARPA SIMPLEX PI Meeting, 2015.

T90 Joshua T Vogelstein. Using big data science to understand what goes on in our heads. SOHOP Faculty Spotlight, 2016.

T91 Joshua T Vogelstein. Using big data science to understand what goes on in our heads. SOHOP Faculty Spotlight, 2017.

Other Talks

T1 *Inferring spike trains from Calcium Imaging*, Redwood Center for Theoretical Neuroscience, University of California, Berkeley, 2008.

T2 *Inferring spike trains from Calcium Imaging*, Cambridge University, Gatsby Unit, and University College London, 2008.

T3 *Inferring Spike Trains Given Calcium-Sensitive Fluorescence Observations*, Statistical Analysis of Neural Data, 2008.

T4 *Towards Inference and Analaysis of Neural Circuits Inferred from Population Calcium Imaging*, Guest Lecture in Schnitzer Lab, 2009.

T5 *Neurocognitive Graph Theory*, national Security Agency, 2009.

T6 *Towards Inferring Neural Circuits from Calcium Imaging*, Guest Lecture in Yuste Lab, 2009.

T7 *OOPSI: A Family of Optimal OPtical Spike Inference Algorithms for Inferring Neural Connectivity from Population Calcium Imaging*, Dissertation Defense, 2009.

T8 *Sequential Monte Carlo in Neuroscience*, SAMSI Program on Sequential Monte Carlo, Tracking Working Group, 2009.

T9 *Consistent Graph Classification*, Guest Lecture in Deisseroth Lab, Stanford University, 2011.

T10 *Connectome Classification: Statistical Graph Theoretic Methods for Analysis of MR-Connectome Data*, Organization for Human Brain Mapping, 2011.

T11 *Consistent Connectome Classification*, Math/Bio Seminar, Duke University, 2011.

T12 *Statistical Connectomics*, Harvard University Connectomics Labs, 2011.

T13 *Once we get connectomes, what the %#* are we going to do with them?*, Krasnow Institute for Advanced Study at George Mason Univeristy, 2011.

T14 *Once we get connectomes, what the %#* are we going to do with them?*, Institute of Neuroinformatics, 2011.

T15 *What can Translational neuroimaging Research do for Clinical Practice*, Child Mind Institute, 2011.

T16 *Decision Theoretic Approach to Statistical Inference*, guest Lecture in Current Topics in Machine Learning, Johns Hopkins University, 2012.

T17 *BIG NEURO*, Theory and Neurobiology, Duke University, 2012.

T18 *Open Connectome Project*, Academic Medical Center, Amsterdam, 2012.

T19 *Statistical Models and Inference for big Brain-Graphs*, NIPS Workshop on Acquiring and analyzing the activity of large neural ensembles, 2013.

T20 *Open Problems in Neuropsychiatry*, Data Seminar, Duke University, 2013.

T21 *Beyond Little Neuroscience*, Beyond Optogenetics workshop at Cosyne, 2013.

T22 *Statistical Inference on Graphs*, University of Michigan, 2013.

T23 *Statistical Inference on Graphs*, Scientific Computing Institute, University of Utah, 2013.

T24 *Big Statistics for Brain Sciences*, Baylor College of Medicine, Department of Neuroscience, May 2014.

T25 *Top Challenges of Big Data Neuroscience*, BRAIN Initiative Workshop, Dec 2014.

T26 *Big (Neuro) Statistics*, Kavli Salon, 2014. Big Data: Practice Across Disciplines.

T27 *big time (series data in neuroscience)*, figshare, 2015.

T28 *Research Computing Support for Neuroscience and Other Life Sciences*, CASC, 2015.

T29 *Open Connectome Project: Lowering the Barrier to Entry of Big Data Neuroscience*, Institute for Computational Medicine at Johns Hopkins University, 2015.

T30 *Law of Large Graphs*, DARPA Graphs, 2015.

T31 *From RAGs to Riches: Utilizing Richly Attributed Graphs to Reason from Heterogeneous Data*, SIMPLEX Kickoff, 2015.

T32 *Opportunities and Challenges in Big Data Neuroscience*, DoE, 2015.

T33 *Special Symposium: Neuroscience in the 21st Century*, Kavli, 2015.

T34 *Local Distance Correlation for Testing Independence*, Temple University, November 2015.

T35 *Open Source Platform for Heterogenous Brain Data*, figshare, 2015.

T36 *Spike inference from calcium imaging using sequential Monte Carlo methods*, AMSI Program on Sequential Monte Carlo, 2015.

T37 *NeuroData: Enabling Terascale Neuroscience for Everyone*, Keystone Symposia: State of the Brain, 2016.

T38 *NeuroData:Enabling Terascale Neuroscience*, JHU Kavli Neuroscience Discovery Institute, 2016.

T39 *The International Brain Station (TIBS)*, Kavli Foundation, 2016.

T40 *NeuroData 2016*, NeuroData Lab Retreat, 2016.

T41 *Global Brain Workshop 2016*, Global Brain Workshop NSF+JHU at Kavli, 2016.

T42 *Global Brain Workshop 2016*, Kavli Institute for Neuroscience Discovery Center for Imaging Science @ JHU, 2016.

T43 *Global Brain Workshop 2016*, Kavli Neuroscience Discovery Institute & Center for Imaging Science, 2016.

T44 *NeuroData:Enabling Terascale Neuroscience*, Kavli Neuroscience Discovery Institute & Center for Imaging Science, 2016.

T45 *Learning a Data-Driven Nosology:Progress, Challenges & Opportunities*, Kavli Neuroscience Discovery Institute & Center for Imaging Science, 2016.

T46 *Multiscale Generalized Correlation*, Joint Statistical Meeting, August 2016.

T47 *Challenges and Opportunities in Big Data for Neuroscientists*, Society for Neuroscience: DC Metro Area Chapter Keynote Address, 2017.

T48 *Discovering Relationships and their Geometry Across Disparate Data Modalities*, Stanford, August 2017.

T49 *Network Dependence Testing via Diffusion Maps and Distance-Based Correlations*, Joint Statistical Meetings, 2017.

T50 *NeuroData*, 2017.

T51 *The International Brain Station (TIBS)*, JHU BME and Tsinghua University, 2017.

T52 *Opportunities and Challenges in Big Data Neuroscience*, Society for Neuroscience, 2017.

T53 *Connectome Coding*, Schmidt Sciences, 2017.

T54 *NeuroStorm*, Global Brain Workshop 2 JHU, 2017.

T55 *knor: a NUMA-Optimized In-Memory, Distributed and Semi-External-Memory k-means library*, HPDC, June 2017.

T56 *knor: K-means NUMA Optimized Routines Library*, High-Performance Parallel and Distributed Computing, 2017.

T57 *ROFLMAO: Robust Oblique Forests with Linear Matrix Operations*, SIAM International Conference on Data Mining 2017, 2017.

T58 *Science in the Cloud (SIC): A use-case in MRI Connectomics*, Open Science Special Interest Group, 2017.

T59 *A Community-Developed Open-Source Computational Ecosystem for Big Neuro Data*, Princeton, Aug 2018.

T60 *Connectome Coding*, Society for Neuroscience, november 2018.

T61 *Connectome Coding: what is it, how do we do it, and why do we care?*, Data science in Neuroscience Symposium, June 2018.

T62 *Discovering Relationships and their Geometry Across Disparate Data Modalities*, Yale, january 2018.

T63 *The Exact Equivalence of Distance and Kernel Methods for Hypothesis Testing*, Joint Statistical Meeting, August 2018.

T64 *A High-Throughput Pipeline Identifies Robust Connectomes but Troublesome Variability*, Organization of Human Brain Mapping, july 2018.

T65 *Data Intensive Brain Science*, Kavli Neuroscience Discovery Institute, June 2018.

T66 *Engineering the Future of Medicine: Data Intensive Biomedical Science*, Johns Hopkins University Biomedical Engineering, March 2018.

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T89 Joshua T Vogelstein. From RAGs to Riches: Utilizing Richly Attributed Graphs to Reason from Heterogeneous Data: Part 2. DARPA SIMPLEX PI Meeting, 2015.

T90 Joshua T Vogelstein. Using big data science to understand what goes on in our heads. SOHOP Faculty Spotlight, 2016.

T91 Joshua T Vogelstein. Using big data science to understand what goes on in our heads. SOHOP Faculty Spotlight, 2017.

Posters

A1 R D Airan, Joshua T Vogelstein, et al. Reproducible differentiation of individual of individual subjects with minimal acquisition time via resting state fmri. page 1932, Proc ISMRM, 2013.

A2 Alex Baden, Eric Perlman, Forrest Collman, Stephen Smith, Joshua T. Vogelstein, and Randal Burns. Processing and analyzing terascale conjugate array tomography data. Berlin, 2017.

A3 James Browne, Disa Mhembere, Tyler M. Tomita, Joshua T. Vogelstein, and Randal Burns. Forest packing: Fast parallel decision forests. SIAM International Conference on Data Mining, 2019.

A4 Shaojie Chen, Kai Liu, Yang Yuguang, Lee Seonjoo, Martin Lindquist, Brian Caffo, and Joshua T Vogelstein. A sparse high dimensional state-space model with an application to neuroimaging data. Figshare, 2015.

A5 Shaojie Chen, Joshua T Vogelstein, Seonjoo Lee, Martin Lindquist, and Brian Caffo. High dimensional state space model with l-1 and l-2 penalties. ENAR 2015, 2015.

A6 Jaewon Chung, Benjamin D. Pedigo, Carey E. Priebe, and Joshua T. Vogelstein. Clustering multi-modal connectomes. OHBM 2019, 2019.

A7 Jaewon Chung, Benjamin D. Pedigo, Carey E. Priebe, and Joshua T. Vogelstein. Human structural connectomes are heritable. BME data science poster session, 2019.

A8 Forrest Collman, Robert Serafin, Sarah Davis, Olga Gliko, Tom M. Keenan, Kristy Parker, Ostroff E. Linnaea, and Stephen J. Smith. An integrated imaging and staining platform for cubic millimeter scale array tomography. Society for Neuroscience, 2015.

A9 C Craddock et al. Towards Automated Analysis of Connectomes: The Configurable Pipeline for the Analysis of Connectomes. OHBM, 2013.

A10 Eva L. Deyer, Hugo L. Fernandes, Will Gray Roncal, Doga Gursoy, Joshua T Vogelstein, Xianghui Xiao, Chris Jacobsen, Konrad P. Kording, and Narayanan Kasthuri. X-brain: Quantifying mesoscale neuroanatomy using x-ray microtomography. Figshare, 2015.

A11 Benjamin Falk and Joshua T. Vogelstein. Neurodata's open data cloud ecosystem. Harvard University, July 2019.

A12 William R Gray, J A Bogovic, Joshua T Vogelstein, C Ye, B A Landman, J L Prince, and R Jacob Vogelstein. Magnetic resonance connectome automated pipeline and repeatability analysis. Society for Neuroscience, 2011.

A13 William R Gray et al. Towards a fully automatic pipeline for connectome estimation from high-resolution em data. Cold Spring Harbor Laboratory, Neuronal Circuits, 2012.

A14 William R Gray et al. Towards a fully automatic pipeline for connectome estimation from high-resolution em data. OHBM, 2013.

A15   William R Gray, Joshua T Vogelstein, J Bogovic, A Carass, J L Prince, B Landman, D Pham, L Ferrucci, S M Resnick, Carey E Priebe, and R Jacob Vogelstein. Graph-theoretical methods for statistical inference on mr connectome data. DARPA Neural Engineering, Science and Technology Forum, 2010.

A16   Danai Koutra, Yu Gong, Sephira Ryman, Rex Jung, Joshua T. Vogelstein, and Christos Faloutsos. Are all brains wired equally? volume 1, page 3, Proceedings of the 19th Annual Meeting of the Organization for Human Brain Mapping (OHBM), 2013.

A17   D Mhembere et al. Multivariate invariants from massive brain-graphs. OHBM, 2013.

A18   Benjamin D. Pedigo, Jaewon Chung, Eric W. Bridgeford, Bijan Varjavand, Carey E. Priebe, and Joshua T. Vogelstein. Graspy: an open source python package for statistical connectomics. Max Planck /HHMI Connectomics Meeting Berlin, 2019.

A19   Eric Perlman. Neurodata: Enabling big data neuroscience. Kavli, 2017.

A20   E A Pnevmatikakis et al. Rank-penalized nonnegative spatiotemporal deconvolution and demixing of calcium inaging data. COSYNE, 2013.

A21   Y Qin et al. Robust clustering of adjacency spectral embeddings of brain graph data via lq-likelihood. OHBM, 2013.

A22   S Sikka, B Cheung, R Khanuja, S Ghosh, Cg Yan, Q Li, Joshua T. Vogelstein, Randal Burns, S Colcombe, C Craddock, et al. Towards automated analysis of connectomes: The configurable pipeline for the analysis of connectomes (c-pac). volume 10, 5th INCF Congress of Neuroinformatics, Munich, Germany, 2014.

A23   N Sismanis et al. Feature clustering from a brain graph for voxel-to-region classification. 5th Panhellic Conference on Biomedical Technology, 2013.

A24   Stephen J. Smith, Randal Burns, Mark Chevillet, Ed Lein, Guillermo Sapiro, William Seeley, James Trimmer, Joshua T Vogelstein, and Richard Weinberg. The open synaptome project: Toward a microscopy-based platform for single-synapse analysis of diverse populations of cns synapses. Society for Neuroscience, 2015.

A25   D Sussman et al. Massive diffusion mri graph structure preserves spatial information. OHBM, 2013.

A26   B Vogelstein, Joshua T Babadi and L Paninski. Model-based optimal inference of spike-times and calcium dynamics given noisy and intermittent calcium-fluorescence imaging. COSYNE, 2008.

A27   J T Vogelstein, D E Fishkind, D L Sussman, and C E Priebe. Large graph classification: theory and statistical connectomics applications. IMA conference on Large Graphs, 2011.

A28   Joshua T Vogelstein. Open connectome project & neurodata: Enabling data-driven neuroscience at scale. Society for Neuroscience, 2015.

A29   Joshua T Vogelstein, B Babadi, BO Watson, R Yuste, and L Paninski. From calcium sensitive fluorescence movies to spike trains. Society for Neuroscience, 2008.

A30   Joshua T Vogelstein, J Bogovic, A Carass, WR Gray, JL Prince, B Landman, D Pham, L Ferrucci, SM Resnick, Carey E Priebe, and RJ Vogelstein. Graph-theoretical methods for statistical inference on mr connectome data. Organization for Human Brain Mapping, 2010.

A31   Joshua T Vogelstein et al. Brainstorm towards clinically and scientifically useful neuroimaging analytics. Neuroinformatics, 2012.

A32   Joshua T Vogelstein et al. Statistical connectomics. Janelia Farm conference, Statistical Inference and Neuroscience, 2012.

A33   Joshua T Vogelstein et al. Anomaly Screening and Clustering of Multi-OBject Movies via Multiscale Structure Learning. DARPA XDATA Colloquium, 2013.

A34   Joshua T Vogelstein, W Gray, J G Martin, G C Coppersmith, M Dredze, J Bogovic, J L Prince, S M Resnick, Carey E Priebe, and R J Vogelstein. Connectome classification using statistical graph theory and machine learning. Society for Neuroscience, 2011.

A35   Joshua T Vogelstein, William R Gray, R Jacob Vogelstein, J Bogovic, S Resnick, J Prince, and Carey E Priebe. Connectome classification: Statistical graph theoretic methods for analysis of mr-connectome data. Organization for Human Brain Mapping, 2011.

A36   Joshua T Vogelstein, B Jedynak, K Zhang, and L Paninski. Inferring spike trains, neural filters, and network circuits from in vivo calcium imaging. Society for Neuroscience, 2007.

A37   Joshua T Vogelstein, Y Mishchchenko, A M Packer, T A Machado, R Yuste, and L Paninski. Towards confirming neural circuits from population calcium imaging. NIPS Workshop on Workshop on Connectivity Infernence in Neuroimaging, 2009.

A38   Joshua T Vogelstein, Y Mishchenki, AM Packer, TA Machado, R Yuste, and L Paninski. Towards inferring neural circuit inference from population calcium imaging. COSYNE, 2009.

A39   Joshua T Vogelstein, Y Mishchenki, AM Packer, TA Machado, R Yuste, and L Paninski. Towards confirming neural circuit inference from population calcium imaging. COSYNE, 2010.

A40   Joshua T Vogelstein, Y Mishchenki, AM Packer, TA Machado, R Yuste, and L Paninski. Towards inferring neural circuit inference from population calcium imaging. COSYNE, 2010.

A41   Joshua T Vogelstein and L Paninski. Inferring spike trains, learning tuning curves, and estimating connectivity from calcium imaging. Integrative Approaches to Brain Complexity, 2008.

A42   Joshua T Vogelstein, E Perlman, D Bock, W C Lee, M Chang, B Kasthuri, M Kazhdan, C Reid, J Lichtman, R Burns, and R Jacob Vogelstein. Open connectome project: collectively reverse engineering the brain one synapse at a time. *Neuroinformatics*, 2011.

A43   Joshua T Vogelstein and Carey E Priebe. Nonparametric two-sample testing on graph-valued data. Duke Workshop on Sensing and Analysis of HighDimensional Data, 2013.

A44   Joshua T Vogelstein, Carey E Priebe, R Burns, R Jacob Vogelstein, and J Lichtman. Measuring and reconstructing the brain at the synaptic scale: towards a biofidelic human brain in silico. DARPA Neural Engineeering, Science and Technology Forum, 2010.

A45   Joshua T Vogelstein, LH Snyder, M Warchol, and DE Angelaki. Up-down asymmetry in memory guided saccadic eye movements are independent of head orientation in space. Society for Neuroscience, 2002.

A46   Joshua T Vogelstein, D L Sussman, M Tang, D E Fishkind, and Carey E Priebe. Dot product embedding in large (errorfully observed) graphs with applications in statistical connectomics. IMA conference on Large Graphs, 2011.

A47   Joshua T Vogelstein, RJ Vogelstein, and Carey E Priebe. A neurocognitive graph-theoretical approach to understanding the relationship between minds and brains. CSHL conference on Neural Circuits, 2010.

A48   Joshua T Vogelstein and K Zhang. A novel theory for simultaneous representation of multiple dynamic states in hippocampus. Society for Neuroscience, 2004.

A49   Joshua T Vogelstein, K Zhang, B Jedynak, and L Paninski. Maximum likelihood inference of neural dynamics under noisy and intermittent observations using sequential monnte carlo em algorithms. COSYNE, 2007.

A50 Shangsi Wang, Zhi Yang, Xi-Nian Zuo, Michael Milham, Cameron Craddock, Carey E. Priebe, and Joshua T. Vogelstein. Optimal design for discovery science: Applications in neuroimaging. Figshare, 2015.

Academic Activities

08/18 – now **Director of Biomedical Data Science Focus Area**.

05/16 – now **Visiting Scientist**, *Howard Hughes Medical Institute*, Janelia Research Campus.

01/11 – now **Co-Founder & Co-Director**, *NeuroData (formerly Open Connectome Project)*.

Commercial Experience

10/18 – now **Advisory Board**, *Mind-X*.

01/17 – now **Co-Founder**, *gigantum*.

01/17 – now **Advisory Board**, *PivotalPath*.

01/16 – now **Co-Founder**, *d8alab*.

Previous Experience

08/14 – 08/18 **Director of Undergraduate Studies**, *Institute for Computational Medicine*.

05/15 – 07/17 **Co-Founder and Faculty Advisor**, *MedHacks*.

10/12 – 08/14 **Endeavor Scientist**, *Child Mind Institute*.

08/12 – 08/14 **Senior Research Scientist**, *Dept's of Statistical Sciences & Mathematics & Neurobiology*.

08/12 – 08/14 **Affiliated Faculty**, *Kenan Institute for Ethics*.
Duke University

08/12 – 08/14 **Adjunct Faculty**, *Department of Computer Science*.

01/11 – 08/12 **Assistant Research Professor**, *Department of Applied Mathematics and Statistics*.

12/09 – 01/11 **Post-Doctoral Fellow**, *Department of Applied Mathematics and Statistics*, Supervised by Carey E. Priebe.
Johns Hopkins University

07/04 – 07/12 **Chief Data Scientist**, *Global Domain Partners, LLC*.

06/01 – 09/01 **Research Assistant**, *Prof. Randy O'Reilly, Dept. of Psychology*.
University of Colorado

06/00 – 09/00 **Clinical Engineer**, *Johns Hopkins Hospital*.

06/99 – 08/99 **Research Assistant under Dr. Jeffrey Williams**, *Dept. of Neurosurgery, Johns Hopkins Hospital*.

06/98 – 08/98 **Research Assistant under Professor Kathy Cho**, *Dept. of Pathology, Johns Hopkins School of Medicine*.

Teaching

Fall 2018 **NeuroData Design I**, *EN.580.437*, Johns Hopkins University.

Spring 2017 **NeuroData Design II**, *EN.580.437*, Johns Hopkins University.

Fall 2017 **NeuroData Design I**, *EN.580.437*, Johns Hopkins University.

Spring 2016 **Upward Spiral of Science**, *EN.580.468*, Johns Hopkins University.

Fall 2016 **NeuroData Design I**, *EN.580.437*, Johns Hopkins University.

Spring 2015 **Statistical Connectomics**, Johns Hopkins University.

Winter 2015 **Statistical Connectomics**, Neuroimaging Specialization, Coursera.

Fall 2015 **Introduction to Computational Medicine**, Co-Teaching, Johns Hopkins University.

Advising

Current Advisees

08/18 – now	**Benjamin Pedigo**, *PhD candidate*, BME.
08/16 – now	**Vikram Chandrashekhar**, *PhD candidate*, BME, JHU.
05/18 – now	**Drishtee Mannan**, *MS*, BME, JHU.
06/18 – now	**Jaewon Chung**, *MS Candidate*, BME.
08/18 – now	**Jesús Arroyo**, *Post-doctoral Fellow*, CIS, JHU.
08/14 – now	**Eric Bridgeford**, *PhD candidate*, Department of Biostatistics, JHU.

Past Advisees

09/16 – 08/18	**Cencheng Shen**, *Post-doctoral Fellow*, CIS, JHU.
08/14 – 01/18	**Tyler Tomita**, *PhD*, BME, JHU.
08/14 – 06/17	**Greg Kiar**, *Research Analyst*, CIS, JHU.
05/16 – 06/17	**Leo Duan**, *Post-doctoral Fellow*, CIS, JHU.
06/16 – 07/17	**Guilherme Franca**, *Post-doctoral Fellow*, CIS, JHU.
08/15 – 08/16	**Albert Lee**, *BSE*, BME, JHU.
06/15 – 12/15	**Ron Boger**, *BSE*, BME, JHU.
05/15 – 05/16	**Jordan Matelsky**, *BSE*, CS and Neuroscience, JHU.
02/15 – 05/16	**Ivan Kuznetsov**, *BSE*, BME, JHU.

Conference and Journal Activities

Reviewer

Annals of Applied Statistics (AOAS), Bioinformatics, Biophysical Journal, IEEE International Conference on eScience, IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), IEEE Global Conference on Signal and Information Processing (Global-SIP), IEEE Signal Processing Letters, IEEE Transactions on Signal Processing, International Conference on Learning Representations (ICLR), Frontiers in Brain Imaging Methods, Journal of Machine Learning Research (JMLR), Journal of Neurophysiology, Journal of the Royal Statistical Society B (JRSSB), Nature Communications, Nature Methods, Nature Reviews Neuroscience, Network Science, Neural Computation, Neural Information Processing Systems (NIPS), NeuroImage, Neuroinformatics, PLoS One, PLoS Computational Biology, Current Opinion in Neurobiology.

Editorial Board

Guest Associate Editor, *PLoS Computational Biology*.

Editor, *Neurons, Behavior, Data analysis, and Theory*.

Events

Summer 2017	**Organizer**, *NeuroStorm*, `https://brainx2.io`.
Spring 2016	**Organizer**, *Global Brain Workshop*, `http://brainx.io`.
Fall 2015	**Co-Organizer**, *BigNeuro2015: Making Sense of Big Neural Data, NIPS Workshop*, `http://neurodata.io/bigneuro2015`.
Winter 2015	**Organizer**, *Hack@NeuroData*, `http://hack.neurodata.io/`.
2015 - 2017	**Faculty Superviser**, *MedHacks*, `http://medhacks.org/`.
Fall 2012	**Co-Organizer**, *Scaling up EM Connectomics Conference*, `https://openwiki.janelia.org/wiki/download/attachments/8687459/final+agenda+EM+Connectomics+100512.pdf`.

Past Funding

5/14 – 2/16   **Scalable Brain Graph Analyses Using Big-Memory, High-IOPS Compute Architectures**, *DARPA (GRAPHS)*, Burns (PI), DARPA-BAA-13-15.

3/13 – 1/16   **Computational infrastructure for massive neuroscience image stacks**, *NIH/NSF (BIG-DATA)*, Mitra (PI), 1R01DA036400.

2/13 – 9/15   **Endeavor Scientists Training Fellowship**, Child Mind Institute, Vogelstein (PI).

9/12 – 8/15   **Data Sharing: The EM Open Connectome Project**, NIH/NIBIB (CRCNS), Burns (PI), 1R01EB016411.

1/14 – 12/14   **Data Readiness Level**, *Laboratory for Analytic Sciences*, Harer (PI).

1/12 – 10/13   **Graph-Based Scalable Analytics for Big Data**, DARPA (XDATA), Andrews (PI), FA8750-12-C-0239.

12/09 – 1/13   **National Center for Applied Neuroscience Project**, *NSF*, RJ Vogelstein (PI).

Languages

Proficient   **English, Hebrew, Love, MATLAB, LaTeX.**

Inproficient   **R, Python, HTML, CSS**.