

Erdem Varol - Curriculum Vitae

CONTACT INFORMATION	Address: 370 Jay Street, Room 1158, Brooklyn, NY 11201 Phone: 917-319-7657 Email: ev2240@nyu.edu Website: www.neuroinformaticslab.com
ACADEMIC POSITIONS	New York University Sep. 2023 to Present Assistant Professor, Computer Science & Engineering Columbia University , New York, NY Sep. 2018 to Sep. 2023 Postdoctoral Research Scientist, Zuckerman Institute Departments of Statistics and Neuroscience, Center for Theoretical Neuroscience Mentor: Liam Paninski University of Pennsylvania , Philadelphia, PA Sep. 2011 to May. 2018 Graduate Research Assistant, Electrical and Systems Engineering Advisor: Christos Davatzikos University of Rochester , Rochester, NY Jan. 2011 to Aug. 2011 Undergraduate Research Assistant, Computational Biomedical Imaging Group Advisor: Mathews Jacob Laboratory for Laser Energetics , Rochester, NY Jan. 2007 to Aug. 2008 Research Assistant, Experimental Fiber Optics Group Advisor: John Marciante
EDUCATION	Ph.D. in Electrical and Systems Engineering Sep. 2012 to May 2018 University of Pennsylvania, Philadelphia, PA Thesis: Advancing statistical inference for population studies in neuroimaging using machine learning Academic Advisor: Christos Davatzikos A.M. in Statistics Sep. 2012 to May 2018 Wharton School, University of Pennsylvania, Philadelphia, PA Thesis: Generative discriminative models for multivariate inference and statistical mapping Academic Advisor: Edward George B.S. in Mathematics, B.S. in Biomedical Engineering Sep. 2006 to May 2011 University of Rochester, Rochester, NY
FUNDING	K99/R00 Pathway to Independence Award Aug. 2022 to Aug. 2027 Code: 1K99MH128772-01A1 Title: Transcriptional basis of stereotyped neural architectures Amount: \$997,884.00

PUBLICATIONS Book Chapters

2. Wen, J.*, Varol, E.*, Dwyer, D.*, Hwang, G.*, Fathi-Kazerooni, A.*, Yang, Z.*, Lalouis, P.*, Davatzikos, D.*, 2022. Subtyping brain diseases from imaging data. In Machine Learning for Brain Disorders (To appear) ***all authors contributed equally**
1. Sotiras, A.*, Gaonkar, B.*, Eavani, H.*, Honnorat, N.*, Varol, E.*, Dong, A.* and Davatzikos, C.*, 2016. Machine learning as a means toward precision diagnostics and prognostics. In Machine Learning and Medical Imaging (pp. 299-334). ***all authors contributed equally**

Peer Reviewed and Published Manuscripts

35. Wen, J., Fu, C.H., Tosun, D., Veturi, Y., Yang, Z., Abdulkadir, A., Mamourian, E., Srinivasan, D., Bao, J., Erus, G. Shou, H.,...,Varol, E.,...,Davatzikos, C. Multi-dimensional representations in late-life depression: convergence in neuroimaging, cognition, clinical symptomatology and genetics. JAMA Psychiatry (To appear)
34. Chand, G.B., Singhal, P., Dwyer, D.B., Wen, J., Erus, G., Doshi, J., Srinivasan, D., Mamourian, E., Varol, E., Sotiras, A. Hwang, G.,...,Davatzikos, C. 2022. Two schizophrenia imaging signatures and their associations with cognition, psychopathology, and genetics in the general population. American Journal of Psychiatry (To appear)
33. Boussard, J.*, Varol, E.*, Lee, H., Dethe, N., Paninski, L. Three-dimensional spike localization and improved motion correction for Neuropixels recordings. Advances in Neural Information Processing Systems, 34. (NeurIPS 2021) ***-denotes equal first authorship**
32. Wen, J., Varol, E., Sotiras, A., Yang, Z., Chand, G.B., Erus, G., Shou, H., Abdulkadir, A., Hwang, G., Dwyer, D.B. and Pignoni, A., 2022. Multi-scale semi-supervised clustering of brain images: deriving disease subtypes. Medical Image Analysis, 75, p.102304.
31. Tekieli, T., Yemini, E., Nejatbakhsh, A., Varol, E., Fernandez, R.W., Masoudi, N., Paninski, L., Hobert, O. Visualizing the organization and differentiation of the male-specific nervous system of *C. elegans*. Development, 148(18), p.dev199687.
30. Taylor, S.R., Santpere, G.*, Weinreb, A.*, Barrett, A.*, Reilly, M.B.*, Xu, C.*, Varol, E.*, Oikonomou, P.*, Glenwinkel, L., McWhirter, R. and Poff, A., 2020. Molecular topography of an entire nervous system. Cell. 2021 Aug 5;184(16):4329-47. ***-denotes equal second authorship**
29. Berghoff, B.G., Glenwinkel, L., Bhattacharya, A., Sun, H., Varol, E., Mohammadi, N., Antone, A., Feng, Y., Nguyen, K., Cook, S.J., Wood, J.F., Masoudi, N., Cros, C.C., Ramadan, Y.H., Ferkey, D.M., Hall, D.H., Hobert O. (2021) The Prop1-like homeobox gene *unc-42* specifies the identity of synaptically connected neurons. Elife, 10.
28. Varol, E., Boussard, J., Dethe, N., Winter, O., Urai, A., The International Brain Laboratory, Churchland, A., Steinmetz, N., Paninski, L. Decentralized Motion Inference and Registration of Neuropixel Data. In ICASSP 2021-2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2021 Jun 6 (pp. 1085-1089). IEEE.
27. Mena, G., Nejatbakhsh, A., Varol, E., Niles-Weed, J. (2021). Sinkhorn EM: An Expectation-Maximization algorithm based on entropic optimal transport. OTML '21.NeurIPS Workshop on Optimal Transport in Machine Learning.
26. Rao, B., Peterson, L. Kandror, L., Herrlinger, S., Losonczy, A., Paninski, L., Rizvi, A.*, Varol, E*. (2021). Non-parametric vignetting correction for sparse spatial transcriptomics images. In International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) (pp. 466-475). ***-Denotes equal senior authorship. (Mentee student travel award)**

25. A. Nejatbakhsh, Varol, E.* 2021, January. Robust approximate linear regression without correspondence. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision 2021 (pp. 2837-2846). ***-Denotes senior authorship.**
24. Reilly, M.B., Cros, C., Varol, E., Yemini, E., and Hobert, O., 2020. Unique homeobox codes define all neuron classes of the nematode *Caenorhabditis elegans*. *Nature*, 1-7.
23. Yemini, E., Lin, A., Nejatbakhsh, A., Varol, E., Sun, R., Mena, G.E., Samuel, A.D., Paninski, L., Venkatachalam, V. and Hobert, O., 2020. NeuroPAL: A Neuronal Polychromatic Atlas of Landmarks for Whole-Brain Imaging in *C. elegans*. *Cell*. 2020 Dec 29.
22. Varol, E., Nejatbakhsh, A., Sun, R., Mena, G.E., Yemini, E., Hobert, O., Paninski, L. Statistical Atlas of *C. Elegans* Neurons. In Medical Image Computing and Computer-Assisted Intervention (MICCAI), October 2020.
21. Nejatbakhsh, A., Varol, E., Yemini, E., Venkatachalam, V., Samuel, A.D., Hobert, O., Paninski, L. Demixing Calcium Imaging Data in *C. elegans* via Deformable Non-negative Matrix Factorization. In Medical Image Computing and Computer-Assisted Intervention (MICCAI), October 2020. (**Mentee student travel award**)
20. Nejatbakhsh, A., Varol, E., Yemini, E., Paninski, L. Probabilistic Joint Segmentation and Labeling of *C. elegans* Neurons. In Medical Image Computing and Computer-Assisted Intervention (MICCAI), October 2020. (**Mentee student travel award**)
19. Wen, J., Varol, E., Chand, G., Sotiras, A., Davatzikos, C. (2020). MAGIC: Multi-scale Heterogeneity Analysis and Clustering for Brain Diseases. In Medical Image Computing and Computer-Assisted Intervention (MICCAI), October 2020.
18. Gross P., Johnson J., Romero C.M., Poulet C., Sanchez-Alonso, J., Lucarelli, C., Ross, J., Lambert, J., Varol, E., Eaton, D., Wallner, M., Kubo, H., Berretta, R.M., Rizzo, V., Elrod, J., Sabri, Gorelik, Chen, and Houser, S.R., 2019. Interaction of the Joining region in Junctophilin-2 with the L-type Calcium channel is pivotal for cardiac dyad assembly and modulates intracellular Ca²⁺ dynamics. *Circulation Research*. January 2021.
17. Baller, E.B., Kaczkurkin, A.N., Sotiras, A., Adebimpe, A., Bassett, D.S., Calkins, M.E., Cui, Z., Gur, R.E., Gur, R.C., Linn, K.A., Moore, T., Varol, E.,..., Satterthwaite, T. 2020. Neurocognitive and Functional Heterogeneity in Depressed Youth. *Neuropsychopharmacology*, 1-8.
16. Truelove-Hill, M., Erus, G., Bashyam, V., Varol, E., Sako, C., Gur, R., Gur, R., Koutsouleris, N., Zhuo, C., Fan, Y., Wolf, D., Satterthwaite, T., and Davatzikos, C., 2019. A multidimensional Adolescent Brain Index reveals reproducible patterns of advanced and delayed development. *Journal of Neuroscience*. 2 January 2020, 2092-19
15. Mena, G.E., Varol, E., Nejatbakhsh, A., Yemini, E., Paninski, L., 2019, December. Sinkhorn Permutation Variational Marginal Inference. In Advances in Approximate Bayesian Inference (AABI) 2019
14. Chand, G., Dwyer, D.B., Erus, G., Sotiras, A., Varol, E., Srinivasan, D., Doshi, J., Pomponio, R., Pigoni, A., ... and Davatzikos C., 2019. Two Distinct Neuroanatomical Subtypes of Schizophrenia Revealed Using Machine Learning. *Brain*. 143(3), 1027-1038.
13. Kaczkurkin, A.N., Sotiras, A., Baller, E.B., Barzilay, R., Calkins, M.E., Chand, G.B., Cui, Z., Erus, G., Fan, Y., Gur, R.E. and Gur, R.C.,..., Varol, E., Wolf, D.H., Satterthwaite, T.D., 2019. Neurostructural Heterogeneity in Youth with Internalizing Symptoms. *Biological Psychiatry*, 87(5), 473-482.
12. Varol, E., A. Sotiras, K. Zeng, C. Davatzikos. Generative discriminative models for multivariate inference and statistical mapping in medical imaging. In Medical Image Computing and Computer-Assisted Intervention (MICCAI), September

2018.

(Student travel award + Oral presentation, acceptance rate: 5%)

11. Varol, E., A. Sotiras, C. Davatzikos. (2018). MIDAS: Regionally linear multivariate discriminative statistical mapping. *NeuroImage*, 174, 111-126.
10. Varol, E., A. Sotiras, C. Davatzikos, 2018, April. Regionally discriminative multivariate statistical mapping. In *International Symposium on Biomedical Imaging (ISBI)*, 2018.
(Oral presentation, acceptance rate:18.2%)
9. A. Dong, J. Toledo, N. Honnorat, J. Doshi, Varol, E., A. Sotiras, D. Wolk, J.Q. Trojanowski, C. Davatzikos. "Heterogeneity of neuroanatomical patterns in prodromal Alzheimers: links to cognition, progression, biomarkers." *Brain*, 140 (3), 735-747.
8. G. I. Allen, . . . , Varol, E., . . . , L. Caberlotto. "Crowdsourced estimation of cognitive decline and resilience in Alzheimer's disease." *Alzheimer's & Dementia* 12.6 (2016): 645-653.
7. P. Gross*, N. Honnorat*, Varol, E.*, M. Wallner, D.M. Trappanese, T.E. Sharp, T. Starosta et al. "Nuquantus: Machine learning software for the characterization and quantification of cell nuclei in complex immunofluorescent tissue images." *Scientific Reports* 6 (2016).
6. Varol, E., A. Sotiras, C. Davatzikos. "HYDRA: Revealing heterogeneity of imaging and genetic patterns through a multiple max-margin discriminative analysis framework." *NeuroImage* (2016).
5. Varol, E., A.Sotiras, C. Davatzikos. Structured outlier detection in neuroimaging studies with minimal convex polytopes. In *Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2016*, October 2016. **(Student travel award)**
4. Varol, E., A.Sotiras, C. Davatzikos. Disentangling disease heterogeneity with max-margin multiple hyperplane classifier. In *Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2015*, October 2015. **(Student travel award)**
3. Varol, E., C. Davatzikos. Supervised block sparse dictionary learning for simultaneous clustering and classification in computational anatomy. In *Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2014*, September 2014.
2. Varol, E., B. Gaonkar, C. Davatzikos. Classifying medical images using morphological appearance manifolds. In *International Symposium on Biomedical Imaging (ISBI)*, 2013. April 2013. **(Oral presentation, acceptance rate:19.4%)**
1. Varol, E., B. Gaonkar, G. Erus, R. Schultz, C. Davatzikos. Feature ranking based support vector machine ensemble for medical image classification. In *International Symposium on Biomedical Imaging (ISBI)*, 2012., May 2012.

Pre-prints & Working papers

11. Barrett, A., Varol, E., Weinreb, A., Miller, D., Hobert, O., Hammarlund, M. (2022). Combined analysis of bulk and single cell RNA-seq improves gene quantification in the *C. elegans* nervous system. (BioRxiv).
10. Chen, S., Rao, B., Herrlinger, S., Losonczy, A., Paninski, L., Varol, E.. Multimodal fluorescence microscopy image registration using morphological and spatial information. (In review).
9. Nejatbakhsh, A., Yu, J., Yemini, E., Venkatachalam, V., Hobert, O., Paninski, L., Varol, E.. (2022) Learning Statistical Atlases of Model Organisms Through Generative Modeling. (In review).

8. Varol, E., Taylor, S.R., Litwin-Kumar, A., Miller, D.M., Hobert, O., Paninski, L. Network differential gene expression analysis for elucidation of the transcriptional encoding of neural connectivity. (In preparation)
7. Varol, E., Boussard, B., Dethe, N., Winter, O., Urai, A., The International Brain Laboratory, Churchland, A., Steinmetz, N., Paninski, L. Registration and spike sorting of Neuropixels recordings. (In preparation)
6. Wen, J., Sotiras, A., Varol, E., Chand, G., Davatzikos, D.. Stochastic Orthogonally Projective Non-negative Matrix Factorization for Large- and Multi-scale Neuroimaging Analysis. (In review)
5. Nejatbakhsh, A.* , Varol, E.* , Yemini, E., Venkatachalam, V., Samuel, A.D., Hobert, O., Paninski, L. (2020) Extracting neural signals from semi-immobilized animals with deformable non-negative matrix factorization. bioRxiv.
4. Varol, E., A. Nejatbakhsh, C. McGrory, 2019, December. Temporal Wasserstein non-negative matrix factorization for non-rigid motion segmentation and spatiotemporal deconvolution. arXiv preprint arXiv:1912.03463. 2019 Dec 7
3. Varol, E., A. Nejatbakhsh, 2019, October. Wasserstein total variation filtering. arXiv preprint arXiv:1910.10822. 2019 Oct 23.
2. Dong A., Sotiras A., Varol, E., Doshi J., Shinohara R.T., Davatzikos, C., HELIOS: Parsing the Heterogeneity of Longitudinal Imaging through Integrated Clustering and Spatiotemporally Regularized Spline Curve Fitting. (Pre-print)
1. Varol, E., A. Sotiras, R.T. Shinohara, C. Davatzikos. Generative discriminative machine. (Pre-print)

Conference Abstracts

14. Shuonan, C., Rao, B., Herrlinger, S., Tuttman, A., Losonczy, A., Paninski, L., Varol, E. (2022) Automatic registration of cellular functional activity in vivo with post-hoc immunohistochemical characterization of cell types. In Research in Computational Molecular Biology (RECOMB 2022), May, 2022.
13. Kfir, Y., Paulk, A., Windolf, C., Varol, E., Cash, S. (2022). Motion correction using local field potential in Neuropixels recordings from the human cortex. In Research in Encoding And Decoding of Neural Ensembles (AREADNE 2022), June, 2022.
12. Varol, E.* , Sanjeev, K.* , Boussard, J., Paninski, L. (2022). Few-shot multi-session decoding of decision making in mice. In Computational and Systems Neuroscience (COSYNE), February, 2022.
11. Varol, E., Taylor, S.R., Litwin-Kumar, A., Miller, D.M., Hobert, O., Paninski, L. (2021). A computational approach linking single neuron gene expression with connectivity. In 23rd International C. elegans Conference, June, 2021.
10. Varol, E., Boussard, J., Dethe, N., Paninski, L. (2020). Decentralized motion inference and registration of Neuropixel data. In Computational and Systems Neuroscience (COSYNE), February, 2021.
9. Hwang, G., Brodtkin, E.S., Chand, G.B., Dwyer, D.B., Wen, J., Erus, G., Doshi, J., Srinivasan, D., Varol, E., Sotiras, A. and Dazzan, P., 2021. Three Distinct Neuroanatomical Subtypes of Autism Spectrum Disorder, Revealed via Machine Learning, and Their Similarities With Schizophrenia Subtypes. *Biological Psychiatry*, 89(9), pp.S374-S375.
8. J. Wen, G. Chand, A. Abdulkadir, R. Pomponio, Varol, E., C. Davatzikos. Multi-scale feature reduction and semi-supervised learning to reveal neuroanatomical heterogeneity. In Organization for Human Brain Mapping (OHBM), June 2020.
7. C. McGrory, A. Nejatbakhsh, Varol, E.. Non-linear matrix factorization methods for extracting calcium traces in moving C. elegans videos. In Computational and Systems Neuroscience (COSYNE), February, 2020.

6. A. Nejatbakhsh, Varol, E.. Joint segmentation and labeling of C. elegans neurons. In Computational and Systems Neuroscience (COSYNE), February, 2020.
5. Varol, E., G. Mena, A. Nejatbakhsh, E. Yemini, L. Paninski. Probabilistic Atlases of C.elegans Neurons in NeuroPAL. In Learning Meaningful Representations of Life Workshop at the 33rd Conference on Neural Information Processing Systems (NeurIPS), December 2019.
4. Varol, E., A.Sotiras, C. Davatzikos. Generative discriminative regression for neuroimaging analysis. In Statistical Methods in Imaging (SMI), June 2018.
3. Varol, E., A.Sotiras, C. Davatzikos. Brain mapping through regional multivariate pattern analysis and discriminative adaptive smoothing. In Organization for Human Brain Mapping (OHBM), June 2017.
2. T. Chaim, M. Silva, Varol, E., J. Doshi, M. Zanetti, B. Gaonkar, M. Serpa, R. Vieira, S. Caetano, M. Louza, C. Davatzikos, G. Busatto. High-Dimensional Pattern Classification of Brain Morphometric and DTI Data of Adult ADHD. In 2012 Annual Meeting - Society of Biological Psychiatry, May 2012.
1. M. Serpa, M. Zanetti, Varol, E., T. Chaim, B. Gaonkar, J. Doshi, M. van de Bilt, P. Sallet, W. Gattaz, G. Busatto, C. Davatzikos. High-Dimensional Pattern Classification of Brain Morphometric and DTI Data of Adult ADHD. In 2012 Annual Meeting - Society of Biological Psychiatry, May 2012.

**INVITED AND
CONTRIBUTED
TALKS**

- Three-dimensional spike localization and improved motion correction for Neuropixels recordings.
NeurIPS '21 (Recorded presentation)
Talk recording: <https://youtu.be/gg6LhGs-54c> **December 2021**
- A computational approach linking neuron-specific gene expression with connectivity.
23rd International C. elegans Conference (Oral presentation)
Talk recording: <https://youtu.be/1K1f8TJf8ic> **June 2021**
- The genetic basis of neural circuits - CeNGEN Workshop
23rd International C. elegans Conference (Oral presentation) **June 2021**
- Motion inference and registration of Neuropixel data
ICASSP'21 (Recorded presentation)
Talk recording: <https://youtu.be/crzG6sAk-qM> **June 2021**
- Motion inference and registration of Neuropixel data
Zuckerman Institute (ZIPS), New York, NY (Nominated Talk) **November 2020**
- Genetic basis of connectivity and graph hypothesis testing **November 2020**
Center for Theoretical Neuroscience Seminar, Columbia University
- Decentralized motion inference and registration of Neuropixel data **October 2020**
Center for Theoretical Neuroscience, Columbia University (Post-doctoral seminar)
- Genetic basis of connectivity in C. elegans **February 2020**
3rd Annual CenGEN Meeting, New York, NY (Invited Talk)
- Optimal transport theory for motion modelling in c. elegans and beyond **January 2020**
Center for Theoretical Neuroscience, Columbia University
- Generative discriminative models for multivariate inference and statistical mapping
MICCAI 2018, Granada, Spain (Conference Oral Presentation) **September 2018**
- Adaptive statistical inference in neuroimaging analysis using machine learning
Columbia University, New York, NY (Invited Talk) **June 2018**

Adaptive statistical inference in neuroimaging analysis using machine learning
Massachusetts Institute of Technology, Boston, MA (Invited Talk) **June 2018**

Adaptive statistical inference in neuroimaging analysis using machine learning
Johns Hopkins University, Baltimore, MD (Invited Talk) **June 2018**

Regionally discriminative multivariate statistical mapping **April 2018**
IEEE ISBI 2018, Washington, DC (Conference Oral Presentation)

Classifying medical images using morphological appearance manifolds. **April 2013**
IEEE ISBI 2013, San Francisco, CA (Conference Oral Presentation)

MENTORING EXPERIENCE

Kamron Saniee (with Liam Paninski) **June 2021 — Present**
Ph.D. student—Dept. of Statistics Columbia University
• Mentorship role: 1 conference abstract in preparation.

Shuonan Chen (with Liam Paninski) **June 2021 — Present**
Ph.D. student—Dept. of Systems Biology Columbia University
• Mentorship role: 1 conference paper in preparation.

Alexis Peterson (with Abbas Rizvi) **January 2021 — Present**
Research assistant— Columbia University
• Mentorship role: 1 conference paper (student travel award), provided guidance in graduate program applications.

Hyun-Dong Lee (with Liam Paninski) **November 2020 — Present**
M.S. student — Dept. of Computer Science Columbia University
• Mentorship role: advised in masters thesis, co-authored 1 conference paper, preparing 1 journal paper.

Charlie Windolf (with Liam Paninski) **October 2020 — Present**
Ph.D student — Dept. of Statistics Columbia University
• Mentorship role: mentored course project (GR2801) on image registration, preparing 1 conference paper.

Julien Boussard (with Liam Paninski) **May 2020 — Present**
Ph.D. Student — Dept. of Statistics Columbia University
• Mentorship role: Provided thesis advice, submitted 2 conference papers, preparing 1 journal paper.

Bovey Rao (with Attila Losonczy) **August 2020 — Present**
Ph.D. Student — Dept. of Neurobiology and Behavior Columbia University
• Mentorship role: Provided thesis advice, 1 conference paper (student travel award).

Amin Nejatbakhsh (with Liam Paninski) **September 2018 — Present**
Ph.D. Student — Dept. of Neurobiology and Behavior Columbia University
• Mentorship role: Provided thesis advice and co-authored in 4 conference papers (1 student travel award), 2 extended abstracts, 1 journal papers, 1 journal paper pre-print.
• Mentored Google fellowship application.

Omer Fahri Onder (with Liam Paninski) **September 2020 — September 2021**
Undergraduate student — Dept. of Computer Science Columbia University
• Mentorship role: provided independent study advice.

Conor McGrory (with Liam Paninski) **August 2019 — July 2020**
Research Assistant— Columbia University

- Mentorship role: Provided research advice and co-authored in 1 conference paper, 1 extended abstract.
- Provided guidance in Ph.D. program applications.
- Current position: Ph.D. student at Stony Brook University, (Neuroscience)

Ruoxi Sun (with Liam Paninski) **September 2018 — June 2019**

Ph.D. Student — Dept. of Neurobiology and Behavior Columbia University

- Mentorship role: Provided thesis advice and co-authored in 1 journal paper.
- Provided guidance in industry job applications.
- Current position: Google - AI Resident

TEACHING EXPERIENCE

Columbia University

Fall 2021

Guest lecturer

- Statistical analysis of neural data (GR8201) (under Liam Paninski)
 - Taught “Intro to Spike Sorting” lecture (in person) (9/24/21 - 1.5 hrs)
 - Taught “Bleeding edge Spike Sorting” lecture (in person) (10/1/21 - 1.5 hrs)
 - Google slides: <https://bit.ly/3nU4lGZ>

University of Florida

Fall 2021

Guest lecturer

- Neuro-AI: Neuroscience meets Artificial Intelligence (EEL 6935) (under Shreya Saxena)
 - Taught “Intro to Spike Sorting” lecture (over ZOOM) (8/29/21 - 50 mins)
 - Google slides: <https://bit.ly/33FcnfX>

University of Pennsylvania

Fall 2013, Spring 2014

Teaching Assistant

- Convex Optimization (ESE 605) (under Alejandro Ribeiro)
 - Held weekly office hours, graded homeworks and exams, designed exams and final project.
- Machine Learning (CIS 520) (under Lyle Ungar)
 - Held weekly office hours, graded homework and exams, designed curriculum, exams, and final project, gave 2 lectures on semester review.

University of Rochester

Fall 2007, Fall 2008, Fall 2009, Fall 2010

Teaching Assistant

- Linear Algebra and Differential Equations (MTH 265) (under Michael Gage & Jonathan Pakianathan)
 - Held weekly mandatory group-sized workshops, graded homework, and exams.
- Applied Fourier Series and Boundary Value Problems (MTH 281) (under Alfred Clark)
 - Held weekly office hours, graded homework, held pre-exam review sessions.

PROFESSIONAL SERVICE **Reviewer for:**

- Elsevier-Neuroimage (2012 – Present)
- Elsevier-Medical Image Analysis (2012 – Present)
- IEEE Transactions on Medical Imaging (2012 – Present)
- MICCAI (2015 – Present)
- Elsevier-Neurobiology of Aging (2019 – Present)
- NeurIPS (2019 – Present)
- AISTATS (2019 – Present)
- IJCAI (2019 – Present)
- ICML (2020 – Present)

Organization committee:

- CeNGEN Workshop at the International C. Elegans Conference 2021 (Organizing committee)
- IJCAI 2020 (Program committee)
- MICCAI-MLCN Workshop 2019,2020,2021 (Program committee)

**DIVERSITY,
EQUITY,
INCLUSION
OUTREACH**

Zuckerman Institute Postdoctoral Seminars (ZIPS) **June 2019 — Present**
Board Member — Columbia University

- Organized postdoctoral seminars - with focus on promoting exposure to under-served communities in STEM: (women, minorities, LGBT-Q)
- Organized post-seminar banquets for promoting community building across different labs in Zuckerman Institute

Zuckerman Institute Athletic Club (ZIAC) **August 2021 — Present**
Founder and President — Columbia University

- Organized ZI sponsored athletic events to promote inter-lab communication, collaboration, and team-building.
- Generated faculty, post-doc, student and staff involvement. 50/50 Female/Male participation. 70/30 Minority vs. Non-minority participation.
- Entries to 3 athletic events in 2021 (NYRR Bronx 10 mile race, NYTri Central Park relay, NYRR Ted Corbitt 15K)
- Secured \$10,000 annual budget for sponsorships, social events and merchandise.

Zuckerman Institute DEI Board **August 2019 — Present**
Participant — Columbia University

- Training in promoting practices and structures that contribute to a more inclusive and diverse place of scientific discovery.
- Help guide the ZI in directly addressing its goals of diversity and inclusion by both investing in people across the scientific enterprise (including pre- and postdoctoral scientists, staff and faculty) and by creating structures that promote equity.

KIPP STAR Harlem Elementary & Middle School **January 2021—March 2021**
Mentor

- Gave after-school neuroscience tutorials to 4th graders.
- Provided math homework help.

AWARDS AND HONORS

Mentee (Rao) Student Travel Award, MICCAI 2021	October 2021
Mentee (Nejatbaksh) Student Travel Award, MICCAI 2020	October 2020
Student Travel Award, MICCAI 2018	October 2018
Student Travel Award, MICCAI 2016	October 2016
Student Travel Award, MICCAI 2015	October 2015
1st place, Alzheimer's Disease Big Data DREAM Challenge #1	April 2015
Dean's List, University of Rochester	2006 – 2011

REFERENCES

Christos Davatzikos, Ph.D.
Professor
Department of Radiology, Department of Electrical and Systems Engineering
University of Pennsylvania
Email: christos.davatzikos@uphs.upenn.edu
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Liam Paninski, Ph.D.
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Department of Statistics, Department of Neuroscience
Columbia University
Email: liam@stat.columbia.edu
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Oliver Hobert, Ph.D.
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Columbia University
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David M. Miller, III, Ph.D.
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Marc Hammarlund, Ph.D.
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Attila Losonczy, Ph.D.
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