Erdem Varol

CONTACT INFORMATION	**Address:** 370 Jay Street, Room 1158, Brooklyn, NY 11201 **Phone:** 917-319-7657 **Email:** ev2240@nyu.edu **Professional website:** https://engineering.nyu.edu/faculty/erdem-varol **Lab 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
Center for Theoretical Neuroscience
Departments of Statistics and 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 & Biomedical Engineering Sep. 2006 to May 2011
University of Rochester, Rochester, NY

FUNDING

NIH K99/R00 Pathway to Independence Award Aug. 2022 to Aug. 2027
Code: 1K99MH128772
Title: Transcriptional basis of stereotyped neural architectures
Amount: $997,884.00

PUBLICATIONS Summary

Google scholar citation count: 1658, h-index: 18, i10-index: 28
Number of book chapters (invited): 2
Number of journal papers (peer-reviewed): 21
Number of conference papers (peer-reviewed): 20
Top five papers indicated below in **red**.

Book Chapters

2. Wen, J., Varol, E., Yang, Z., Hwang, G., Dwyer, D., Kazerooni, A. F., ... & Davatzikos, C. (2023). Subtyping brain diseases from imaging data. In Machine Learning for Brain Disorders (pp. 491-510). New York, NY: Springer US.

1. Sotiras, A., Gaonkar, B., Eavani, H., Honnorat, N., Varol, E., Dong, A., & Davatzikos, C. (2016). Machine learning as a means toward precision diagnostics and prognostics. In Machine learning and medical imaging (pp. 299-334). Academic Press.

Peer Reviewed and Published Manuscripts

41. Coughlin, B., Munoz, W., Kfir, Y., Young, M. J., Meszna, D., Jamali, M., ... & Paulk, A. C. (2023). Modified Neuropixels probes for recording human neurophysiology in the operating room. Nature Protocols, 1-27.

40. Nejatbakhsh, A., Dey, N., Venkatachalam, V., Yemini, E., Paninski, L., & Varol, E. (2023, June). Learning Probabilistic Piecewise Rigid Atlases of Model Organisms via Generative Deep Networks. In International Conference on Information Processing in Medical Imaging (pp. 332-343). Cham: Springer Nature Switzerland.

39. Chen, S., Rao, B. Y., Herrlinger, S., Losonczy, A., Paninski, L., & Varol, E. (2023, June). Multimodal Microscopy Image Alignment Using Spatial and Shape Information and a Branch-and-Bound Algorithm. In ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (pp. 1-5). IEEE.

38. Windolf, C., Paulk, A. C., Kfir, Y., Trautmann, E., Meszna, D., Munoz, W., ... & Varol, E. (2023, June). Robust online multiband drift estimation in electrophysiology data. In ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (pp. 1-5). IEEE.

37. Dwyer, D. B., Chand, G. B., Pigoni, A., Khuntia, A., Wen, J., Antoniades, M., ... & Dazzan, P. (2023). Psychosis brain subtypes validated in first-episode cohorts and related to illness remission: results from the PHENOM consortium. Molecular Psychiatry, 1-10.

36. Hwang, G., Wen, J., Sotardi, S., Brodkin, E. S., Chand, G. B., Dwyer, D. B., ... & Davatzikos, C. (2023). Assessment of neuroanatomical endophenotypes of autism spectrum disorder and association with characteristics of individuals with schizophrenia and the general population. JAMA psychiatry, 80(5), 498-507.

35. Chand, G. B., Singhal, P., Dwyer, D. B., Wen, J., Erus, G., Doshi, J., ... & Davatzikos, C. (2022). Schizophrenia imaging signatures and their associations with cognition, psychopathology, and genetics in the general population. American Journal of Psychiatry, 179(9), 650-660.

34. Wen, J., Fu, C. H., Tosun, D., Veturi, Y., Yang, Z., Abdulkadir, A., ... & Davatzikos, C. (2022). Characterizing heterogeneity in neuroimaging, cognition, clinical symptoms, and genetics among patients with late-life depression. JAMA psychiatry, 79(5), 464-474.

33. Wen, J., Varol, E., Sotiras, A., Yang, Z., Chand, G. B., Erus, G., ... & Alzheimer's Disease Neuroimaging Initiative. (2022). Multi-scale semi-supervised clustering of brain images: deriving disease subtypes. Medical image analysis, 75, 102304.

32. Boussard, J., Varol, E., Lee, H. D., Dethe, N., & Paninski, L. (2021). Three-dimensional spike localization and improved motion correction for Neuropixels recordings. Advances in Neural Information Processing Systems, 34, 22095-22105.

31. Tekieli, T., Yemini, E., Nejatbakhsh, A., Wang, C., Varol, E., Fernandez, R. W., ... & Hobert, O. (2021). Visualizing the organization and differentiation of the male-specific nervous system of C. elegans. Development, 148(18), dev199687.

30. Taylor, S. R., Santpere, G., Weinreb, A., Barrett, A., Reilly, M. B., Xu, C., Varol, E., ... & Miller, D. M. (2021). Molecular topography of an entire nervous system. Cell, 184(16), 4329-4347. #1 paper: 280 citations.

29. Berghoff, E. G., Glenwinkel, L., Bhattacharya, A., Sun, H., Varol, E., Mohammadi, N., ... & Hobert, O. (2021). The Prop1-like homeobox gene unc-42 specifies the identity of synaptically connected neurons. Elife, 10, e64903.

28. Varol, E., Boussard, J., Dethe, N., Winter, O., Urai, A., Laboratory, T. I. B., ... & Paninski, L. (2021, June). Decentralized motion inference and registration of neuropixel data. In ICASSP 2021-2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (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. Baller, E. B., Kaczkurkin, A. N., Sotiras, A., Adebimpe, A., Bassett, D. S., Calkins, M. E., ... & Satterthwaite, T. D. (2021). Neurocognitive and functional heterogeneity in depressed youth. Neuropsychopharmacology, 46(4), 783-790.

25. Gross, P., Johnson, J., Romero, C. M., Eaton, D. M., Poulet, C., Sanchez-Alonso, J., ... & Houser, S. R. (2021). Interaction of the joining region in junctophilin-2 with the L-type Ca2+ channel is pivotal for cardiac dyad assembly and intracellular Ca2+ dynamics. Circulation research, 128(1), 92-114.

24. Yemini, E., Lin, A., Nejatbakhsh, A., Varol, E., Sun, R., Mena, G. E., ... & Hobert, O. (2021). NeuroPAL: a multicolor atlas for whole-brain neuronal identification in C. elegans. Cell, 184(1), 272-288. #5 paper: 123 citations.

23. Rao, B. Y., Peterson, A. M., Kandror, E. K., Herrlinger, S., Losonczy, A., Paninski, L., ... & Varol, E. (2021). Non-parametric vignetting correction for sparse spatial transcriptomics images. In Medical Image Computing and Computer Assisted InterventionMICCAI 2021: 24th International Conference, Strasbourg, France, September 27October 1, 2021, Proceedings, Part VIII 24 (pp. 466-475). Springer International Publishing.

22. Nejatbakhsh, A., & Varol, E. (2021). Neuron matching in c. elegans with robust approximate linear regression without correspondence. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (pp. 2837-2846).

21. Reilly, M. B., Cros, C., Varol, E., Yemini, E., & Hobert, O. (2020). Unique homeobox codes delineate all the neuron classes of C. elegans. Nature, 584(7822), 595-601.

20. Chand, G. B., Dwyer, D. B., Erus, G., Sotiras, A., Varol, E., Srinivasan, D., ... & Davatzikos, C. (2020). Two distinct neuroanatomical subtypes of schizophrenia revealed using machine learning. Brain, 143(3), 1027-1038.#2 paper: 160 citations..

19. Kaczkurkin, A. N., Sotiras, A., Baller, E. B., Barzilay, R., Calkins, M. E., Chand, G. B., ... & Satterthwaite, T. D. (2020). Neurostructural heterogeneity in youths with internalizing symptoms. Biological psychiatry, 87(5), 473-482.

18. Truelove-Hill, M., Erus, G., Bashyam, V., Varol, E., Sako, C., Gur, R. C., ... & Davatzikos, C. (2020). A multidimensional neural maturation index reveals reproducible developmental patterns in children and adolescents. Journal of Neuroscience, 40(6), 1265-1275.

17. Mena, G., Varol, E., Nejatbakhsh, A., Yemini, E., & Paninski, L. (2020, February). Sinkhorn permutation variational marginal inference. In Symposium on Advances in Approximate Bayesian Inference (pp. 1-9). PMLR.

16. Varol, E., Nejatbakhsh, A., Sun, R., Mena, G., Yemini, E., Hobert, O., & Paninski, L. (2020). Statistical atlas of c. elegans neurons. In Medical Image Computing and Computer Assisted Intervention MICCAI 2020: 23rd International Conference, Lima, Peru, October 48, 2020, Proceedings, Part V 23 (pp. 119-129). Springer International Publishing.

15. Nejatbakhsh, A., Varol, E., Yemini, E., Venkatachalam, V., Lin, A., Samuel, A. D., ... & Paninski, L. (2020). Demixing calcium imaging data in C. elegans via deformable non-negative matrix factorization. In Medical Image Computing and Computer Assisted Intervention MICCAI 2020: 23rd International Conference, Lima, Peru, October 48, 2020, Proceedings, Part V 23 (pp. 14-24). Springer International Publishing.

14. Nejatbakhsh, A., Varol, E., Yemini, E., Hobert, O., & Paninski, L. (2020). Probabilistic joint segmentation and labeling of c. elegans neurons. In Medical Image Computing and Computer Assisted Intervention MICCAI 2020: 23rd International Conference, Lima, Peru, October 48, 2020, Proceedings, Part V 23 (pp. 130-140). Springer International Publishing.

13. 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 2020: 23rd International Conference, Lima, Peru, October 48, 2020, Proceedings, Part VII 23 (pp. 678-687). Springer International Publishing.

12. Varol, E., Sotiras, A., & Davatzikos, C. (2018). MIDAS: Regionally linear multivariate discriminative statistical mapping. NeuroImage, 174, 111-126.

11. Varol, E., Sotiras, A., & Davatzikos, C. (2018, April). Regionally discriminative multivariate statistical mapping. In 2018 IEEE 15th International Symposium on Biomedical Imaging (ISBI 2018) (pp. 1560-1563). IEEE.

10. Varol, E., Sotiras, A., Zeng, K., & Davatzikos, C. (2018). Generative discriminative models for multivariate inference and statistical mapping in medical imaging. In Medical Image Computing and Computer Assisted InterventionMICCAI 2018: 21st International Conference, Granada, Spain, September 16-20, 2018, Proceedings, Part III 11 (pp. 540-548). Springer International Publishing.

9. Dong, A., Toledo, J. B., Honnorat, N., Doshi, J., Varol, E., Sotiras, A., ... & Alzheimers Disease Neuroimaging Initiative. (2017). Heterogeneity of neuroanatomical patterns in prodromal Alzheimers disease: links to cognition, progression and biomarkers. Brain, 140(3), 735-747. #3 paper: 155 citations.

8. Varol, E., Sotiras, A., Davatzikos, C., & Alzheimer's Disease Neuroimaging Initiative. (2017). HYDRA: Revealing heterogeneity of imaging and genetic patterns through a multiple max-margin discriminative analysis framework. Neuroimage, 145, 346-364. #4 paper: 137 citations.

7. Allen, G. I., Amoroso, N., Anghel, C., Balagurusamy, V., Bare, C. J., Beaton, D., ... & Alzheimer's Disease Neuroimaging Initiative. (2016). Crowdsourced estimation of cognitive decline and resilience in Alzheimer's disease. Alzheimer's & Dementia, 12(6), 645-653.

6. Gross, P., Honnorat, N., Varol, E., Wallner, M., Trappanese, D. M., Sharp, T. E., ... & Houser, S. R. (2016). Nuquantus: Machine learning software for the characterization and quantification of cell nuclei in complex immunofluorescent tissue images. Scientific reports, 6(1), 23431.

5. Varol, E., Sotiras, A., & Davatzikos, C. (2016). Structured outlier detection in neuroimaging studies with minimal convex polytopes. In Medical Image Computing and Computer-Assisted InterventionMICCAI 2016: 19th International Conference, Athens, Greece, October 17-21, 2016, Proceedings, Part I 19 (pp. 300-307). Springer International Publishing.

4. Varol, E., Sotiras, A., & Davatzikos, C. (2015). Disentangling disease heterogeneity with max-margin multiple hyperplane classifier. In Medical Image Computing and Computer-Assisted Intervention–MICCAI 2015: 18th International Conference, Munich, Germany, October 5-9, 2015, Proceedings, Part I 18 (pp. 702-709). Springer International Publishing.

3. Varol, E., & Davatzikos, C. (2014). Supervised block sparse dictionary learning for simultaneous clustering and classification in computational anatomy. In Medical Image Computing and Computer-Assisted InterventionMICCAI 2014: 17th International Conference, Boston, MA, USA, September 14-18, 2014, Proceedings, Part II 17 (pp. 446-453). Springer International Publishing.

2. Varol, E., Gaonkar, B., & Davatzikos, C. (2013, April). Classifying medical images using morphological appearance manifolds. In 2013 IEEE 10th International Symposium on Biomedical Imaging (pp. 744-747). IEEE.

1. Varol, E., Gaonkar, B., Erus, G., Schultz, R., & Davatzikos, C. (2012, May). Feature ranking based nested support vector machine ensemble for medical image classification. In 2012 9Th IEEE international symposium on biomedical imaging (ISBI) (pp. 146-149). IEEE.

Pre-prints & Working papers

10. Wen, J., Skampardoni, I., Tian, Y. E., Yang, Z., Cui, Y., Erus, G., ... & Davatzikos, C. (2023). Neuroimaging-AI Endophenotypes of Brain Diseases in the General Population: Towards a Dimensional System of Vulnerability. medRxiv, 2023-08.

9. Wen, J., Yang, Z., Nasrallah, I. M., Cui, Y., Erus, G., Srinivasan, D., ... & ADNI studies. (2022). Genetic, clinical underpinnings of subtle early brain change along Alzheimers dimensions. bioRxiv, 2022-09.

8. Hwang, G., Wen, J., Sotardi, S., Brodkin, E. S., Chand, G. B., Dwyer, D. B., ... & Davatzikos, C. (2022). Three Imaging Endophenotypes Characterize Neuroanatomical Heterogeneity of Autism Spectrum Disorder. medRxiv, 2022-06.

7. Barrett, A., Varol, E., Weinreb, A., Taylor, S. R., McWhirter, R. M., Cros, C., ... & Hammarlund, M. (2022). Integrating bulk and single cell RNA-seq refines transcriptomic profiles of specific C. elegans neurons. BioRxiv, 2022-04.

6. Chand, G. B., Singhal, P., Dwyer, D. B., Wen, J., Erus, G., Doshi, J., ... & Davatzikos, C. (2022). Two schizophrenia imaging signatures and their associations with cognition, psychopathology, and genetics in the general population. medRxiv, 2022-01.

5. Nejatbakhsh, A., Varol, E., Yemini, E., Venkatachalam, V., Lin, A., Samuel, A. D., & Paninski, L. (2020). Extracting neural signals from semi-immobilized animals with deformable non-negative matrix factorization. bioRxiv, 2020-07.

4. Mena, G., Nejatbakhsh, A., Varol, E., & Niles-Weed, J. (2020). Sinkhorn em: an expectation-maximization algorithm based on entropic optimal transport. arXiv preprint arXiv:2006.16548.

3. Yemini, E., Lin, A., Nejatbakhsh, A., Varol, E., Sun, R., Mena, G. E., ... & Hobert, O. (2019). NeuroPAL: a neuronal polychromatic atlas of landmarks for whole-brain imaging in C. elegans. BioRxiv, 676312.

2. Varol, E., Nejatbakhsh, A., & McGrory, C. (2019). Temporal Wasserstein non-negative matrix factorization for non-rigid motion segmentation and spatiotemporal deconvolution. arXiv preprint arXiv:1912.03463.

1. Varol, E., & Nejatbakhsh, A. (2019). Wasserstein total variation filtering. arXiv preprint arXiv:1910.10822.

Selected Conference Abstracts

14. Windolf, C., ...,Varol, E. (2023) Robust registration of high-density electrophysiology data with DREDge. In Society for Neuroscience (SFN 2023), November, 2023.

13. 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.

12. 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.

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 23nd 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., Brodkin, 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. Wen, J., Chand, G., Abdulkadir, A., Pomponio, R., Varol, E., Davatzikos, C. (2020) Multi-scale feature reduction and semi-supervised learning to reveal neuroanatomical heterogeneity. In Organization for Human Brain Mapping (OHBM), June 2020.

7. McGrory, C., 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. Nejatbakhsh, A., 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. (2018) Generative discriminative regression for neuroimaging analysis. In Statistical Methods in Imaging (SMI), June 2018.

3. Varol, E., A.Sotiras, C. Davatzikos. (2017) Brain mapping through regional multivariate pattern analysis and discriminative adaptive smoothing. In Organization for Human Brain Mapping (OHBM), June 2017.

2. Serpa, M. H., Zanetti, M. V., Varol, E., Chaim, T. M., Gaonkar, B., Doshi, J., ... & Davatzikos, C. (2012). Neuroanatomical Pattern Classification in Unmedicated First-Episode Psychosis: Influence of Different Imaging Feature Selection. In Biological Psychiatry.

1. Chaim, T. M., Silva, M. A., Varol, E., Doshi, J., Zanetti, M. V., Gaonkar, B., ... & Busatto, G. F. (2012). High-Dimensional Pattern Classification of Brain Morphometric and DTI Data of Adult ADHD. In Biological Psychiatry.

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
	Center for Theoretical Neuroscience, Columbia University **January 2020**
	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	Alex Ratzan **September 2023 — Present**
	Ph.D. student—Dept. of Computer Science & Engineering, NYU
	Jizheng Dong **September 2023 — Present**
	Ph.D. student—Dept. of Computer Science & Engineering, NYU
	Michael Middleton **September 2023 — Present**
	Ph.D. student—Dept. of Computer Science & Engineering, NYU

Tianxiao He **September 2023 — Present**
Ph.D. student—Dept. of Computer Science & Engineering, NYU

Margaret Conde Paredes (with Attila Losonczy) **September 2023 — Present**
Ph.D. student—Dept. of Neurobiology and Behavior, Columbia University

Daniela Shoham **June 2023 — Present**
Undergraduate—Dept. of Computer Science, Barnard College

Shuonan Chen (with Liam Paninski) **June 2021 — September 2023**
Ph.D. student—Dept. of Systems Biology, Columbia University

Charlie Windolf (with Liam Paninski) **October 2020 — September 2023**
Ph.D student — Dept. of Statistics, Columbia University

Julien Boussard (with Liam Paninski) **May 2020 — September 2023**
Ph.D. Student — Dept. of Statistics, Columbia University

Bovey Rao (with Attila Losonczy) **August 2020 — September 2023**
Ph.D. Student — Dept. of Neurobiology and Behavior, Columbia University

Amin Nejatbakhsh (with Liam Paninski) **September 2018 — September 2022**
Ph.D. Student — Dept. of Neurobiology and Behavior, Columbia University

TEACHING   **New York University** **Spring 2024**
Lecturer
- Selected Topics in CS: Neuroinformatics (CS-GY 9223 E)

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)
- Machine Learning (CIS 520) (under Lyle Ungar)

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)
- Applied Fourier Series and Boundary Value Problems (MTH 281) (under Alfred Clark)

PROFESSIONAL SERVICE	**Area Chair** • MICCAI 2023

Reviewer / Program Chair
- eLife (2023 – Present)
- Cell Reports (2023 – Present)
- 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)
- MICCAI-MLCN Workshop (2019 – Present)
- CeNGEN Workshop at the International C. Elegans Conference 2021 (Organizing committee)

DIVERSITY, EQUITY, INCLUSION & OUTREACH

Zuckerman Institute Postdoctoral Seminars (ZIPS)   **June 2019 — August 2023**
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 — August 2023**
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.
- Secured $10,000 annual budget for sponsorships, social events and merchandise.

Zuckerman Institute DEI Board   **August 2019 — August 2023**
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 (Windolf) Best student paper finalist, ICASSP 2023	**June 2023**
	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.
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Department of Radiology, Department of Electrical and Systems Engineering
University of Pennsylvania
Email: christos.davatzikos@uphs.upenn.edu
Phone: 215.746.4067

Liam Paninski, Ph.D.
Professor
Department of Statistics, Department of Neuroscience
Columbia University
Email: liam@stat.columbia.edu
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Oliver Hobert, Ph.D.
Professor
Department of Biochemistry and Molecular Biophysics
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