Samantha Sun, PhD

Contact

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Education

University of Washington, Seattle, WA — 2018 – 2024
Doctor of Philosophy, Bioengineering
Advisers: Rajesh P.N. Rao, Jeffrey Ojemann

University of Washington, Seattle, WA — 2014 – 2018
Bachelor of Science, Bioengineering (honors)
Capstone Adviser: Christine Mac Donald

Professional Experience

Graduate Research Assistant - GRID Lab — 2019 – 2024
Seattle, WA
Decoded behavioral states from multi-channel time-series human iEEG using dimensionality reduction and machine learning approaches. Designed and performed electrical stimulation experiments to build knowledge in neurostimulation therapies.

Neuromodulation Research Co-op - Boston Scientific — 2022
Valencia, CA
Integrated multi-modal data (e.g. device usage, subject-reported metrics) onto a cloud database, which populated a custom-built dashboard providing daily updates of clinical study KPIs and subject-specific metrics for data-driven decision making.

Biomedical Research Intern - Physio-Control/Stryker — 2018
Redmond, WA
Evaluated a method to isolate motion artifact from the impedance signal collected by our device during cardiopulmonary resuscitation using circuit models and by building and implementing animal testing protocols.

Undergraduate Research Assistant - Mac Donald Research Lab — 2017 – 2018
Seattle, WA
Quantified brain network-level changes in pediatric sports-related concussion using graph theory applied to diffusion tensor imaging data.

Peer-Reviewed Publications

L. H. Levinson, **S. Sun**, C. Paschall, K. Perks, K. Weaver, S. Perlmutter, A. Ko, J. Ojemann, J. Herron, "Data processing techniques impact quantification of cortico-cortical evoked potentials," Journal of Neuroscience Methods, August 2024

S. Sun, L. H. Levinson, C. Paschall, K. Weaver, J. Hauptman, A. Ko, J. Herron, J. Ojemann, R. P.N. Rao. "Human intracortical responses to varying electrical stimulation conditions are separable in low-dimensional subspaces," 2022 IEEE International Conference on Systems, Man, and Cybernetics (SMC)

S. Sun, L. P. Jiang, S. M. Peterson, J. Herron, K. Weaver, A. Ko, J. Ojemann, R. P.N. Rao. "Unsupervised Sleep and Wake State Identification in Long-Term Electrocorticography

Recordings," 2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society, Montreal, QC, Canada, 2020

C. L. Mac Donald, J. Barber, J. Wright, D. Coppel, N. De Lacy, S. Ottinger, S. Peck, C. Panks, **S. Sun**, K. Zalewski, N. Temkin. "Longitudinal Clinical and Neuroimaging Evaluation of Symptomatic Concussion in 10- to 14-Year-Old Youth Athletes," J Neurotrauma. 2019 Dec 27

C. L. Mac Donald, J. Barber, J. Wright, D. Coppel, N. De Lacy, S. Ottinger, S. Peck, C. Panks, K. Zalewski, **S. Sun**, N. Temkin. "Quantitative Volumetric Imaging and Clinical Outcome Characterization of Symptomatic Concussion in 10- to 14-Year-Old Adolescent Athletes," J Head Trauma Rehabil. 2018 Jan 30

C. L. Mac Donald, J. Barber, J. Andre, N. Evans, C. Panks, **S. Sun**, K. Zalewski, R. Elizabeth Sanders, N. Temkin. "5-Year imaging sequelae of concussive blast injury and relation to early clinical outcome," Neuroimage Clin.;14:371-378. 2017 Feb 9

Poster Presentations

S. Sun, L. Levinson, C. Paschall, K. Weaver, J. Hauptman, A. Ko, J. Herron, J. Ojemann, R. P.N. Rao, "Comparison of human local field potential dynamics during different electrical stimulation conditions," Poster, Society for Neuroscience Annual Meeting, Nov 12-16, 2022, San Diego, CA, USA.

S. Sun, K. Han, J. Wright, D. Coppel, N. De Lacy, S. Ottinger, S. Peck, C. Panks, C. L. Mac Donald. "A Graph Theoretical Analysis of Symptomatic Pediatric Sports-Related Concussion using Diffusion Tensor Imaging," Poster at The 3rd Joint Symposium of the International and National Neurotrauma Societies, Toronto, Canada; 2018

Fellowships

Big Data for Genomics and Neuroscience Training Grant 2019 – 2020

Awards

IEEE Brain Best Paper Award 2022
IEEE SMC Best Paper Finalist 2022
Research Symposium Population Health Recognition Award 2018
Nomination for Jody Deering Nyquist Awards, Excellence in Public Speaking 2018
Mary Gates Research Scholar 2017
University of Washington Dean's List (all quarters) 2014 – 2018

Outreach

Pacific Science Center Content Adviser 2023 – 2024

Center for Neurotechnology Student Leadership Council 2016 – 2022
Outreach Coordinator (2020 – 2022)
Seminar Coordinator (2019 – 2020)
President (2018 – 2019)
Undergraduate Representative (2016 – 2018)