

Interests

Brain-Computer Interfaces, NeuroAI, Embodied AI

Education

Carnegie Mellon University

PhD Program in Neural Computation | GPA: 4.0 / 4.0

2021-

Advisors: Robert Gaunt, Leila Wehbe. Expected graduation: 2026

Georgia Institute Of Technology

M.S. Computer Science | Machine Learning Specialization | GPA: 4.0 / 4.0

2021

B.S. Computer Science | Minor in Mathematics | GPA: 4.0 / 4.0

2017-2020

Publications and Presentations

FALCON: Few-shot Algorithms for Consistent Neural Decoding. *NeurIPS*, 2024.

Karpowicz, B*, J. Ye*, Fan, C., Tostado-Marcos, P., Rizzoglio, F., Washington, C., Scodeler, T., de Lucena, D., Nason-Tomaszewski, S. R., Mender, M. J., Ma, X., Arneodo, E. M., Hochberg, L. R., Chestek, C. A., Henderson, J. M., Gentner, T. Q., Gilja, V., Miller, L. E., Rouse, A. G., Gaunt, R. A., Collinger, J. L., Pandarinath, C.

Neural Data Transformer 2: Multi-context Pretraining for Neural Spiking Activity. *NeurIPS*, 2023.

J. Ye, J. Collinger, L. Wehbe*, R. Gaunt*.

Neural Latents Benchmark '21: Evaluating latent variable models of neural population activity. *Neural Information Processing Systems (NeurIPS) Benchmarks and Datasets*, 2021.

F. Pei*, J. Ye*, D. Zoltowski, A. Wu, R. Chowdhury, H. Sohn, J. O'Doherty, K. Shenoy, M. Kaufman, M. Churchland, M. Jazayeri, L. Miller, J. Pillow, M. Park, E. Dyer, C. Pandarinath.

Auxiliary Tasks and Exploration Enable ObjectNav. *International Conference on Computer Vision (ICCV)* 2021.

J. Ye, D. Batra, A. Das, and E. Wijmans.

Auxiliary Tasks Speed Up Learning PointGoal Navigation. *Conference on Robot Learning (CoRL)*, 2020.

J. Ye, D. Batra, E. Wijmans, and A. Das.

Representation learning for neural population activity with Neural Data Transformers. *Neurons, Behavior, Data analysis, and Theory (NBDT)*, 2021. Poster at SfN 2021, Neuromatch 3.0, 2020.

J. Ye, C. Pandarinath.

Honors and Awards

DOE Computational Science Graduate Fellowship. National fellowship for scientific research using high performance computing (2022-26).

Donald V. Jackson Fellowship. Award for academic excellence and leadership. 1 of 3 awards for 250 eligible MS students in the Georgia Tech College of Computing.

Experience

Amazon, Research Intern

Summer 2021

- Studied embodied agent navigation in dynamic settings

Microsoft, Visual Document Intelligence, Software Engineering Intern

Summer 2020

- Prototyped region annotation and data augmentation for doc. understanding frontend + C# backend

Ubiquity6, Software Engineering Intern - San Francisco, CA

Summer 2019

- Prototyped wayfinding experience for navigating AR scenes, using a custom navigation mesh
- Analyzed ARKit (Obj-C) and ARCore (Java) anchor drift, assessing viability for better pose priors

Projects

- A Saccading Model for Temporal Illusions** | Report: github.com/joel99/illusions 2021
- We apply a self-supervised recurrent vision model to reproduce the uniformity illusion.
- Learning from Different Expert Agents** | Report: joel99.github.io/lfd_7648_final.pdf 2021
- How can one robot learn from demonstrations given by another robot?
 - We propose Seq2Seq domain translation to overcome the action space mismatch between robots.
- Perturbome of Graphs of RNNs** | Report: github.com/joel99/noised-rnn-networks 2020
- How do deep neural networks compute in the presence of internal noise, or targeted perturbation?
 - Evaluated this dynamical robustness by noising recurrent networks built with pytorch-geometric
- Photobooth** | github.com/HackGT/photo-style 2018
- Interfaced with style-transfer server to collect styled photos, built masking app with HTML canvas
 - Set up server polling endpoint to interface with DSLR camera trigger, provide fallback laptop camera