

## Interests

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Brain-Computer Interfaces, NeuroAI, Embodied AI

## Education

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### 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

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### A Generalist Intracortical Motor Decoder. *NeurIPS*, 2025.

Ye, J., Rizzoglio, F., Smoulder, A., Mao, H., Ma, X., Marino, P., Chowdhury, R., Moore, D., Blumenthal, G., Hockeimer, W., Kunigk, N.G., Mayo, J.P., Rouse, A., Batista, A., Chase, S., Greenspon, C., Miller, L., Hatsopoulos, N., Collinger, J.L., Wehbe, L., Gaunt, R.

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

Karpowicz, B.\*, Ye, J.\*, 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.

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

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

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

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

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

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

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

### 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.

Ye, J., Pandarinath, C.

## Talks

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Benchmarking for BCI foundation models

(Organizer) BCI Society 2025

Evaluating progress in neural foundation models

Cosyne 2025

## Honors and Awards

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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

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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

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A Saccading Model for Temporal Illusions | Report: [github.com/joel99/illusions](https://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](https://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](https://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](https://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