Joel Ye

NeuroAI researcher

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joel99.github.io

Interests

Brain-Computer Interfaces, NeuroAI, Embodied AI

Education

Carnegie Mellon University
PhD in Neural Computation | *GPA: 4.0 / 4.0* 2021-2026
Advisors: Robert Gaunt, Leila Wehbe
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

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

Benchmarking for BCI foundation models (Organizer) BCI Society 2025
Evaluating progress in neural foundation models Cosyne 2025

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

Stealth startup, *NeuroAI researcher - NYC* Present

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