

Research Interests

NeuroAI, Embodied AI, Brain-Computer Interfaces, AR/VR, Machine Perception

Education

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

J. Ye, D. Batra, A. Das, and E. Wijmans. Auxiliary Tasks and Exploration Enable ObjectNav.

Under review at ICCV 2021.

J. Ye, D. Batra, E. Wijmans, and A. Das. Auxiliary Tasks Speed Up Learning PointGoal Navigation.

In Conference on Robot Learning (CoRL), 2020.

J. Ye, C. Pandarinath. Representation learning for neural population activity with Neural Data Transformers.

Under review. Poster presentation at Neuromatch 3.0, 2020.

Awards

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.

Projects

Submissions to CVPR Embodied AI Challenges

2021

- Preparing agents for the AI2-Thor and Habitat ObjectNav challenges (*with O. Maksymets, in progress*).

Neural Latents Benchmark | neurallatents.github.io/

2021

- Organizing benchmark for unsupervised models of neural activity (*with C. Pandarinath, in progress*).

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

Automatically Defined Functions

2019

- Designed and built system to detect and extract useful functions in evolved computation trees

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

Experience

Microsoft, Visual Document Intelligence, Software Engineering Intern - Remote

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