Joel Ye

joelye9@gmail.com
joel99.github.io

Research Interests

Embodied AI, Deep Reinforcement Learning, NeuroAI, AR/VR, Brain-Computer Interfaces

Education

Georgia Institute Of Technology
M.S. Computer Science | Machine Learning Specialization | *GPA: 4.0 / 4.0* May 2021
B.S. Computer Science | Minor in Mathematics | *GPA: 4.0 / 4.0* May 2020
- Coursework: Comp. Neuro, Network Science, Computation and the Brain, Learning from Demonstrations

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*).

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

BERT Representations During Fine-Tuning | Report: github.com/joel99/bert-representations 2020
- Studied how transformers change during fine-tuning and forgetting using representational analysis

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 empty region annotation and data augmentation for document recognition frontend
- Integrated, benchmarked and analyzed data augmentation performance in C# backend

Ubiquity6, *Software Engineering Intern - San Francisco, CA* Summer 2019
- Prototyped wayfinding experience for navigating AR scenes, using a custom navigation mesh
- Wrote React Native UI for collecting user feedback, improving components for draggable content
- Wrote SfM post-processing to prototype feature extraction training pipeline
- Analyzed ARKit (Obj-C) and ARCore (Java) anchor drift, assessing viability for better pose priors
- Extended render engine testing suite through Puppeteer, wrapping Three.JS API