

Xingjian Jackson Gao

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Education

University of California, Berkeley August 2022 – Present
5th Year M.S., EECS Berkeley, CA
Coursework: Computer Vision, Deep Neural Networks, Deep Reinforcement Learning

University of California, Berkeley August 2018 – May 2022
Computer Science B.A. + Applied Mathematics B.A., Letters & Science (GPA: 4.0) Berkeley, CA
Coursework: Computational Principles for High-dimensional Data Analysis, Artificial Intelligence, Optimization Models, Probability and Random Processes, Complex Analysis

Research Experience

Sparse Coding in Deep Learning | Prof. Yi Ma Fall 2021 – Present
UC Berkeley Artificial Intelligence Research Lab (BAIR) Berkeley, CA

- Developed convolutional sparse coding (CSC) layers as a replacement of convolutional layers
- Built CSC models with precise inverses for better interpretability in image recognition and generation
- Achieved near state-of-the-art performance on image classification and reconstruction tasks

Generative Models for Neural Data | Prof. Doris Tsao Spring 2022 – Present
UC Berkeley Neural Science Lab Berkeley, CA

- Built customized GANs to generate realistic images to cause the max firing rate of IT cells of macaques
- Used CSC to learn a highly structured representation for images with high correlation to neural data
- Tweaked variations of Stable Diffusion to predict images seen by the brain with only neuron responses

Work Experience

Software Engineering Intern Summer 2019
IBM Beijing, China

- Produced fast and reliable code implementing ML algorithms to help better sell the banking products
- Tweaked the code to reduce runtime to 70% of the original while maintaining accuracy of the results
- Researched on Multi-Label Classification methods and Automated ML techniques

Research Publications

Revisiting Sparse Convolutional Model for Visual Recognition NeurIPS 2022
Xili Dai, Mingyang Li, Pengyuan Zhai, Shengbang Tong, Xingjian Gao, Shao-Lun Huang, Zhihui Zhu, Chong You, Yi Ma Accepted

Closed-Loop Transcription via Convolutional Sparse Coding
Xili Dai, Ke Chen, Shengbang Tong, Jingyuan Zhang, Xingjian Gao, Yuexiang Zhai, Mingyang Li, Xiaojun Yuan, Heung-Yeung Shum, Lionel Ni, Yi Ma

Exploring the Encoding Scheme of the Brain by Generating Images on Axes in a Common Space Berkeley EECS Masters Report
Jackson Gao

Awards & Honors

Highest Distinction in General Scholarship at Graduation
University of California, Berkeley May 2022

Specialized Skills

Programming: PyTorch, JAX, Python, Java, C, Go, SQL, MATLAB, LaTeX, Git