Drake Brown

Drakebenbrown@gmail.com – 385-900-9369 – www.linkedin.com/in/drake-brown-5398b9224 –
https://github.com/brownthesr - https://byu.joinhandshake.com/stu/users/18277885

Education

BS, Applied & Computational Mathematics Emphasis (ACME), Computer Science Minor **April 2025**
Brigham Young University *Provo, Utah*

- Concentration: Data Science
- Major GPA: 4.00
- Academic Scholarship
- Relevant Coursework:

Advanced Deep Learning	Linear and Nonlinear Analysis
Stochastic Differential Equations	Theory of Analysis
Algorithm Design and Optimization	Multivariable Calculus
Advanced Programming Concepts	

Skills

- Proficient in Python (PyTorch, Lightning, NumPy, Pandas), SQL, C++, Java
- Junior Year Skills

Data Structures	Page Rank Valuations
Fourier Analysis	Importance and Rejection Sampling
Dynamic Optimization	Gaussian Quadrature
QR and Singular Value Decompositions	Numerical Optimization
Numerical Linear Algebra	Wavelets
Thompson Sampling	

Experience

Research Assistant Lead **February 2022 – Present**
Graph Neural Networks Lab *Provo, Utah*

- Invited talk at SIAM-NSS conference. Results later submitted to *ICLR* as "Connecting the performance of GNN architectures to the properties of training data"
- Parallel processed 200 Graph Neural Network models to generate 15,488,000 data points (PyTorch)

Air Force Research Intern **April – September 2023**
Self-Supervised Image Representation Learning Lab *Dayton, Ohio*

- Outperformed state of the art results in self-supervised image learning on STL10 and Cifar100 by 4%
- Paper to be submitted at ICLR titled "Self-Supervised Learning Through Latent Sub-Space Alignment"
- Implemented Momentum Learners such as BYOL or Google's DINO

Research Assistant **December 2022 – April 2023**
Perception Cognition and Control Lab *Provo, Utah*

- Developed a restful API pipeline to generate 5,000 text responses from the large language models GPT4, BLOOM, and FLAN
- Performed narrative analysis on text generated by LLM's
- Partitioned the resulting text using sentence transformers, then analyzed using U-Map

Relevant Projects

Class projects in PyTorch, BYU **October 2022**

- Trained hundreds of reinforcement agents in parallel to model strategies in the Prisoner's Dilemma
- Developed a Music Transformer to generate instrumental scores and interpolate between music genres

Private Project in PyTorch, BYU **April 2023**

- Developing a Causal Video Transformer to predict video frames (in progress)
- Created a context topic similarity search using sentence transformers (RoBERTa) for ancient texts