[redacted]
Email: [redacted] | GitHub: https://github.com/Moonflower2022

Education

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- Coursework includes Intro to Algorithms, Calculus, Linear Algebra, Advanced Probability, Mathematical Modeling, Physics, Chemistry, Biology, Computational Biology (Neuroscience).

Significant Projects

Quick, Draw! Classification and Generation Models *2024 - Present*

- Developed and designed multiple Convolutional Neural Networks and Recurrent Neural Networks.
- Calibrated classification models to reach 92% accuracy on a 95 class dataset of 50000 sketches per.
- Currently implementing an RNN based Variational Auto Encoder as described in Ha & Eck (2018), *A Neural Representation of Sketch Drawings* for generating human style vector sketches.

Neuroscience Modeling (repo) (presentation) *2024 - Present*

- Researched models of consciousness and attributes of the human brain for Comp Biology project.
- Implemented NK models, networks of NK models, and functions to analyze and visualize them to model human neural networks and draw conclusions about their effectiveness and robustness.
- Compiled research and implementations into a 30 minute presentation given to the entire class.

Reinforcement Learning Exploration (write-up) (repo) *2023 - 2024*

- Assessed light reinforcement learning algorithms (Q-Learning), heavy reinforcement learning algorithms (PPO, A2C, Deep Q-Learning), and pathfinding algorithms (A*, Hamiltonian circuits).
- Implemented the algorithms, tuned hyperparameters (rewards, learning rate, exploration rate), persistently adjusted the settings (grid sizes, starting snake length), optimized their performances.
- Presented models and findings at the school STEM Fair, curated a video based on my learning that was submitted to the 2024 Junior Breakthrough Challenge (scored in top 40% of all submissions).

Employment Experience

Mathnasium Instructor *2024 - Present*

- Assisting K-12 students with math coursework, patiently guiding them through crucial math concepts, participating in staff meetings to improve teaching (minimum wage).
- Learned responsibility, interacting with young children, handling stressful situations.

Skills and Interests

- **Key Skills:** Programming **(**Machine Learning, Web Development, Game Development, Algorithms, Simulation), Math (Calculus and Linear Algebra), Physics, Video Editor, Fluent Chinese Speaker.
- **Programming Languages:** Python, JavaScript, HTML, CSS, C++, C.
- **Python Packages:** Matplotlib, Numpy, Pandas, Pytorch, Scipy, Scikit-learn, Keras.
- **Software:** Git, Sage, Visual Studio Code, Adobe Illustrator, Adobe Photoshop, Adobe Premiere Pro
- **Personal Interests:**
  - Passionate math student that completed four years of high school math in one year.
  - Tennis captain of varsity school team with multiple L7 USTA tournament wins.
  - Competitive chess player with USCF rating of 1383 and perfect records at national tournaments