Hudson Liu

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA Expected Graduation: May 2027
BS in Statistics and Machine Learning, BS in Artificial intelligence
Related coursework: Computer Vision, Machine Learning, Data Structures, Databases, Data Reasoning, Proofs/ Linear Algebra/Calculus/Probability

SKILLS/INTERESTS

Languages/Libraries: python, C, java, typescript/javascript, HTML/CSS, R, SQL, Latex, PyTorch, Matpolitlib, Seaborn, Numpy
Tools/Models: CNN, ViT, RL, MongoDB, Github, React, nextJS, Tailwind CSS, ShadCN
AWARD: 2nd place in the 38th Annual U.S. Open Go Competition

EXPERIENCE

Research in Implementing CNN and RL on Go and Board Games
Texas A&M University July 2024 - Ongoing

- Developed and fine-tuned a deep RL model based on the AlphaGo Zero architecture. where the model autonomously learned strategies for the Go game through self-play, completing over 2,000 matches and achieving a 40% winning rate playing against professional players.
- Extended the RL model's applicability to other board games like Chess and UNO, applying policy gradient methods for decision-making to encourage self-learn.
- Future Research: Exploring machine training through self-play with any valid user input of the rules, potentially generalizing to 5+ board games

Full Stack Software Developer, New Jersey
Sharron Art Center June 2024 - Ongoing

- Developed a dynamic web application that increased the exposure of this education program by 10% (with an average of 300 monthly views).
- Used React and Typescript to display around 10 dynamic pages which show the information about the program and provide interactivity between the user and the website
- Used TailwindCSS, Figma, and ShadCn for front-end development.
- Utilized MongoDB to create Login Authentication for 10+ teachers, allowing teachers to efficiently post up-to-date content and manage a live chat feature that facilitated real-time interaction with over 140 students."

Research in Genetics and Social Conformity, Chicago Nov 2021 - April 2023

- Published peer-reviewed article "*Advances in Genetic Basis of Social Conformity*" on JHSS with 440 views.
- Collected and analyzed a dataset of over 500 samples using Simple Random Sampling (SRS) and built a linear regression model of genetics VS social behavior, with a 70% accuracy rate to predict genetic influence on social conformity, highlighting the role of genes such as dopamine and serotonin.

PROJECTS

Image Classification using Convolutional Neural Networks | CIFAR-10 Dataset

- Designed and implemented a Convolutional Neural Network (CNN) model to classify images into 10 distinct categories (e.g., airplanes, cars, birds) using the CIFAR-10 dataset, consisting of 60,000 32x32 color images.