ISAAC CHUNG

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EDUCATION
B.S. Computer Science | Concentration in Economics
Harvey Mudd College | Claremont, CA | Expected Grad: May 2025
GPA: 3.905 | Dean's List: Spring 2022 - Spring 2023

RELEVANT COURSEWORK
Data Structures/Prgm Development (C++), Computability and Logic (Prolog, LaTeX, Python), CS for Insight (Python), Principles of CS (Java, Racket), Intro to CS (Python), Intro to Comp Prgm (C++), Intro: Probability and Stats (R), Discrete Math, Lin Alg, Single & Multivariable Calc, Intro to Cog Sci, Eng Systems, Principles of Macroecon & Microecon

COMPUTER SKILLS
Programming Languages: *Python, C++, Java, HTML, CSS, JavaScript, R, Prolog, Racket*
Software: *Visual Studio, Google Colab, GitHub, Git, Jupyter, LaTeX, RStudio, Docker, Excel*
Technical Skills: *Software Development, Machine Learning, Computer Vision, Neural Nets, Decision Trees, PyTorch, TensorFlow, NumPy, Data Science, Algorithms, Image Processing, Data Visualization, API Utilization, OOP, NLP, Web Dev*

WORK EXPERIENCE
Research Intern - *LACE Lab* - Claremont, CA   05/2023 - 7/2023
- Utilized Model-Based Reinforcement Learning (MBRL) principles to develop artificial agents that make optimal decisions in MinAtar and Atari2600 video game environments.
- Implemented and tested a Python NN framework that predicts appearing object states in different display frames.
- Enhanced C++ Decision Tree predictions of appearing object states by designing simulated, predictive models.
- Trained both methods to minimize loss and optimize AI performance in real-game scenarios.

Research Intern - *Krauss Lab Tribology* - Claremont, CA   10/2022 - 5/2023
- Developed Python ML models that quantify the separation and agglomeration of gas-phase synthesized graphene (GSG) particles in different oils and dispersant additives.
- Utilized OpenCV, Scikit-Image, and NumPy to process particles and analyze effectiveness of GSG as a lubricant.
- Developed Image Processing slidedeck to present results at the STLE exhibition in Long Beach, CA.

Tutor and Grader - *Computer Science Department* - Claremont, CA   9/2022 - Present
- Teach undergraduates Python, Java, and C++ fundamentals including data structures, OOP, Turing Machines, time and space complexities, and a plethora of efficient algorithms for real-world applications.
- Grade development projects and technical assignments for students.

Business Manager - *Online Marketing - Etsy.com* - Los Angeles, CA   6/2020 - 8/2020
- Sold affordable, high-quality clothing and face masks for children and adults during peak of the pandemic.
- Managed shippings, branding, advertisements, and customer's requests for personal modifications on products.

PROJECTS
Weather App - *Harvey Mudd College* **-** Claremont, CA   12/2022 - 1/2023
- Designed a weather app webpage using HTML and CSS that displays a city's temperature and weather forecasts.
- Analyzed weather information through the OpenWeatherApp API using JavaScript, React, and Axios.

Spampede Game - *Harvey Mudd College* **-** Claremont, CA   12/2022
- Designed a custom "Snake Game" UI and backend functionality in Java using the MVC software design pattern.
- Developed an automated game mode that prompts the AI to find optimal paths using BFS algorithms.

Sports Betting Model - *Harvey Mudd College* **-** Claremont, CA   7/2022 - 8/2022
- Created a Python linear regression model that optimizes users' profits from NBA bettings.
- Manipulated NBA API variables to test custom ML models that analyzed statistics online through web scraping.

Face Detection Simulator - *Harvey Mudd College* **-** Claremont, CA   7/2022 - 8/2022
- Utilized the Haar Cascade Python library to quantify and detect faces in various images.

LEADERSHIP EXPERIENCE
Software Developer - *MuddSub: RoboSub Team* - Claremont, CA   10/2022 - 5/2023
- Worked with 3 team members to design an object navigation system through Python ML models, Kalman Filters, and Recurrent YOLO/DeepSORT algorithms using a custom COCO dataset.
- Combined computer vision, AI, and particle filter localization fundamentals to create a fully perceptual mechanism that can traverse through bodies of water and avoid obstacles in its path.

Mentor - *Gateway for Exploring Mathematical Sciences* - Claremont, CA   10/2022 - 5/2023
- Guided fifty secondary students through workshops and puzzles to help them understand complex math concepts.