

Henry Gaston

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EDUCATION

California Institute of Technology

Sept. 2024 – Present

B.S. Computer Science and Mathematics, advised by Professor Anima Anandkumar GPA: 4.3 / 4.3 (unique highest)

Relevant 1st & 2nd Year Courses:

2024/25 and 2025/26 Courses

- Computer Science Core: Introduction to Computer Programming, Introduction to Programming Methods, Introduction to Software Design, Fundamentals of Computer Programming, Introduction to Computing Systems, Decidability and Tractability, Algorithms
- Machine Learning: Machine Learning & Data Mining, Learning Systems 1 & 2, Advanced Topics in Machine Learning
- Mathematics: Calculus of One and Several Variables and Linear Algebra (1, 2, 3), Introduction to Computational Science and Engineering, Applied Linear Algebra, Introduction to Discrete Mathematics, Differential Equations, Introduction to Probability and Statistics

EXPERIENCE

Research Fellowship

Feb. 2024 – Present

Caltech - Professor Hannah Druckenmiller

Pasadena, CA

- Developing a model that predicts and quantifies Clean Water Act noncompliance from satellite imagery
- Building a novel satellite imagery model that can predict small-scale construction over short timelines, fine-tuned for performance in rural areas; working with incoming University of Maryland CS Professor Ritwik Gupta

Research Assistant

2023

University of Pittsburgh

Pittsburgh, PA

- Developed a fully computational machine learning pipeline for designing antibody-based therapeutics
- Tested model accuracy with the redesign of cemiplimab and teropavimab; filled in gaps in the existing pipeline, writing Python scripts to automate the process

Volunteer Tutor / Teacher

2020-2024

Bethel Park Public Library

Bethel Park, PA

- Designed and taught courses at my local public library introducing kids to coding and offered free math tutoring

PROJECTS

Facial Recognition Dorm Room Locks | Python, OpenCV, Hardware Design

2024

- Built a 3D printed door lock with an NVIDIA Jetson Nano, relay circuit, and solenoid that runs a custom facial recognition model to unlock dorm door automatically

Mark Cuban Foundation AI Bootcamp | Microsoft Azure

2022

- Built projects using natural language processing, computer vision, and machine learning with Microsoft Azure

Other small-scale personal programming projects | Python, C, Java, HTML/Javascript

2020-2024

- Built web games, including a version of *Tiny Tanks*, *Mario*, etc.
- Built a search engine for mental health resources for kids and teens
- Advised startup BWitti on algorithm design

SKILLS

Languages: Java, Python, C/C++, SQL, Matlab, JavaScript, HTML/CSS, R

Developer Tools: Git, Google Cloud Platform, Microsoft Azure, VS Code, IntelliJ, AWS

Libraries: PyTorch, TensorFlow, scikit-learn, pandas, NumPy, Matplotlib, GDAL, OpenCV, Keras, GeoPandas, Rasterio, Seaborn, Fiona, albumentations, Docker

LEADERSHIP

Caltech NCAA Men's Varsity Soccer

Caltech Jazz Band Guitarist

Caltech AI Alignment Group

Caltech Board of Control Representative