Ayush Rautwar

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EDUCATION

University of Michigan
2021-2025, Computer Science

Thomas Jefferson HS for Sci/Tech
2017-2021
GPA: 4.404/4.0

COURSEWORK

Computer Vision
Artificial Intelligence
Machine Learning
Multivariable Calculus
Special Functions and Integrals
Quantum Mechanics
Concrete Mathematics
Robotics

SKILLS

Programming

Linux Scripting • Python • Java • C++ • Javascript • HTML • CSS • Github

Machine Learning • Data Science • Flight Software • Algorithmic Coding

Tensorflow • Keras • Scikit-Learn • OpenCV

Robotics

Microcontrollers • Prototyping • Raspberry Pi • Arduino

Mechanical

Fusion360 CAD • 3D Printing • Laser Cutting

SCORES

SAT: 1570/1600
Physics Subject Test: 800
Math 2 Subject Test: 800

LINKS

linkedin.com/in/ayush-rautwar
github.com/ayusher
ayushrautwar.com

EXPERIENCE

Surmount AI | Chief Technology Officer
August 2021 - Present

- Oversee all technical development for aggressively growing startup
- Develop proprietary machine learning-based techniques to analyze market conditions and execute real-time trades
- Create an AWS-based backend to link to broker API's for account automation

Two Six Labs | Machine Learning Intern
June 2019 - August 2019

- Developed a connection-free Android text detection and recognition app to help the US military identify threats in foreign laboratories
- Implemented efficient Keras-based optical character recognition (OCR)
- Tested trained models with Tensorflow Lite for Android
- Compared results to open-source alternatives

CLUBS

TJ Nanosatellite Team | Project Manager & President
September 2017 - June 2021

- Managed development of TJREVERB, a NASA-granted 2U radio satellite mission
- Oversaw all aspects of satellite development, including in-house electronics system design, Python and C++ flight software, Fusion-based modeling and assembly, and complete system testing procedure

Project Caelus | Co-Founder & Flight Dynamics Lead
November 2018 - November 2019

- Analyzed flight dynamics for liquid-propellant rocket engine designs using Matlab
- Developed Golang, Rust, and Python flight software iterations

RESEARCH

Multimodal Facial Gesture Recognition
Dr. Marwa Mahmoud, University of Cambridge
October 2020 - May 2021

- Generated natural-looking hand-on-face gesture images using OpenCV
- Created and trained a machine learning pipeline to classify gesture region, gesture shape, and emotion using Docker, Keras, and OpenFace

PERSONAL PROJECTS

Efficient RL-Based Othello
April 2021

- Created an othello environment along with baseline search agents
- Implemented a general-purpose algorithm using Python and Cython, based around MCTS and policy/value networks, trained through self-play
- Implemented multithreading and memory management to optimize training

CodingClash
June 2020

- Worked with a team to develop a virtual AI competition from scratch using Python Django, custom frontend, AWS S3 storage, and Heroku hosting
- Secured sponsors and hosted a successful nationwide competition

Market Trading DQN
December 2019

- Mined sentiment, price, volume, and options data using custom scripts
- Created an asset-trading deep q-network agent capable of consistently beating traditional market indicators using Keras with Tensorflow addons