Ruthesh Thavamani

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EDUCATION

University of Michigan August 2023 - May 2026 (expected)
B.S. Computer Science in the College of Engineering, Minor in Math GPA 4.00/4.00

Troy High School August 2019 - June 2023
High School Diploma GPA 4.47/4.00

Coursework: Intro to ML (in progress), Data Structures and Algorithms, Foundations of Computer Science, Mathematics of Finance, Discrete Math, Calculus III, Linear Algebra, Intro to Probability and Statistics, Linear Optimization, Deep Learning with Python and PyTorch (edX)

Honors: 6x American Invitational Mathematics Examination (AIME) qualifier, USA Computing Olympiad (USACO) Silver Division, Michigan Math Prize Competition Honorable Mention, National Merit Finalist

PROJECTS

Noteworthy.ai April 2024
- Web app that takes your notes and makes a 2-page cheat sheet that can be downloaded as a PDF or LaTeX file
- Integrated Node.js and Express.js, along with Google Gemini API for the backend
- Created frontend with React.js plus Bootstrap and Material UI libraries

Pedagora November 2023
- Web app that takes in a video of someone answering an interview question to give personalized feedback about their response's quality, eye contact, and emotional state
- Integrated Google Cloud Speech-to-Text API, ChatGPT API, computer vision, and Python Streamlit
- Won Most Innovative Use of Data at Mhacks 16

Real vs. Photoshopped Face Detector August 2023 - December 2023
- Developed a Convolutional Neural Network (CNN) using transfer learning with ResNet50 to distinguish between real and photoshopped faces, achieving a classification accuracy of 72.3%
- Enhanced the model's performance through data augmentation to diversify the training dataset, and utilized Grad-CAM to visualize the model

EXPERIENCE

Undergraduate Research Assistant March 2024 - Present
Algorithm Developer Ann Arbor, MI
- Developing a method of artificially generating terrain data for autonomous vehicle simulations by taking FFTs of real-world terrain data and using fractal algorithms to create new landscapes using Julia
- Currently working on writing a function to find the fractal dimension of a given terrain

Quantitative Consulting and Finance Group January 2024 - Present
Algorithm Developer Ann Arbor, MI
- Working with a team to implement the SABR option pricing model in C++ to find statistical arbitrage
- Implemented the Nelder-Mead algorithm as a minimization function and worked on the data pipeline to get real-time option prices using yfinance

U of M's Autonomous Robotic Vehicle Team September 2023 - December 2023
Computer Vision Subteam Ann Arbor, MI
- Integrated a program using YOLOv5 and DeepSORT with Pytorch to successfully detect obstacles and the driveable area within the lane using camera footage

SKILLS

Languages: C/C++, Python, Julia, Java, HTML, CSS, Javascript, Typescript
Tools/Libraries: Node.js, React.js, Express.js, Restful APIs, PyTorch, Pandas, NumPy, Jupyter, Git
Interests: Machine Learning, Artificial Intelligence, Backend, Frontend, Full Stack, Web Dev, Fintech, Data Science