Rishi Pathak

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Education

Georgia Institute of Technology — Atlanta, GA
Master of Science in Computer Science — GPA: 4.0 — *Aug 2023 - May 2025*

Georgia Institute of Technology — Atlanta, GA
Bachelor of Science in Computer Science — GPA: 3.91 — *Aug 2020 - May 2023*

Experience

Amazon Inc. — May 2023 – Aug 2023
Software Development Engineer Intern @ Amazon Pay — *Cupertino, CA*

Amazon Inc. — May 2022 – Aug 2022
Software Development Engineer Intern @ Amazon Web Services — *Seattle, WA*

Research

Computer Vision Research Assistant — Dec 2022 – Present
Sonification Lab @ Georgia Institute of Technology — *Atlanta, GA*

- Developing a handworn, camera based drone controller. Tracking handpose using visual odometry and structure-from-motion algorithms.
- Researching algorithms for efficient image compression as part of the visual odometry pipeline.

Computer Vision Research Assitant — Aug 2021 – May 2022
Rehg Lab @ Georgia Institute of Technology — *Atlanta, GA*

- Researched computer-vision models that understand non-verbal communication cues such as gaze and gestures.
- Wrote neural-network architecture in PyTorch to generate saliency maps from video.

Mathematics Research Assistant — May 2020 – May 2021
Department of Mathematics @ Georgia Institute of Technology — *Atlanta, GA*

- Worked under Dr. Heinrich Matzinger to determine the infection fatality rate of the first wave of COVID-19.
- Parsed mortality and infection data from 45+ local and international databases using the requests library.
- Visualized IFR through 30+ models stratified by age, sex, and location through matplotlib, numpy, and pandas.

Projects

Self Driving RC Car | *Python, OpenCV, PySerial, Numpy, C, Linux* — May 2021 – Aug 2021

- Converted a regular RC Car to an vision based self-driving car with a Raspberry Pi, Arduino, and piCamera.
- Wrote C code for precise servo and dc motor control with an Arduino.
- Engineered a UART based protocol with the pySerial library for communication between the Pi and Arduino.

iHeard | *Python, PyTorch, Flask, Jupyter Notebook, API, JavaScript, HTML, CSS* — Dec 2020 – Jan 2021

- Lead development of web app to help the hard of hearing navigate through automatic sound classification.
- Implemented and trained a CNN with over 68% accuracy on the UrbanSound Dataset which featured over 8,000 sounds belonging to 10 distinct classes.

LikeMySong | *Python, Pandas, Scikit-Learn, PyTorch, Spotify API* — Nov 2020 – February 2021

- Leading the creation of a music recommender system with a team of eight other programmers.
- Scraped metadata for every known genre indexed by Spotify (three million+ songs in total) using the Spotify API.
- Implemented clustering algorithms (birch, agglomerative, k-means) using scikit-learn to generate song/genre similarity representations. Clustered 5000+ genres into 1000 automatically calculated similarity categories.

Technical Skills

Languages: Python, Javascript, C++, C, Java, Bash, LaTex
Libraries: OpenCV, React, Numpy, Pandas, Pytorch, Requests, Matplotlib, Sklearn, Pyserial
Hardware: Arduino, Raspberry Pi, piCamera, AVR MCU's, Fritzing, ESP32, Navio2

Publications & Awards

Undergraduate Thesis - *Efficient Image Compression for Embedded Visual Odometry - 2023*
National Merit Scholarship Winner - *National Merit Corporation* - National - *2020*