

# Rishi Pathak

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## EDUCATION

### Georgia Institute of Technology

Master of Science in Computer Science — GPA: 4.0

Atlanta, GA

Aug 2023 - May 2025

### Georgia Institute of Technology

Bachelor of Science in Computer Science — GPA: 3.93

Atlanta, GA

Aug 2020 - May 2023

## EXPERIENCE

### Amazon Inc.

Software Development Engineer Intern @ Amazon Pay

May 2023 – Aug 2023

Cupertino, CA

### Amazon Inc.

Software Development Engineer Intern @ Amazon Web Services

May 2022 – Aug 2022

Seattle, WA

## RESEARCH

### Computer Vision Research Assistant

Sonification Lab @ Georgia Institute of Technology

Dec 2022 – Present

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

Rehg Lab @ Georgia Institute of Technology

Aug 2021 – May 2022

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

Department of Mathematics @ Georgia Institute of Technology

May 2020 – May 2021

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**