# 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*