Rishi Pathak

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Education

Georgia Institute of Technology — Atlanta, GA
Bachelor of Science in Computer Science — GPA: 3.88 — *Aug. 2020 – May 2023*

Experience

Deep Learning Researcher — Aug 2021 – Present
Rehg Lab — *Atlanta, GA*

- Researching novel computer-vision models that can understand non-verbal communication cues such as gaze, gestures, posture, and facial expressions.
- Implemented rigid-euclidean and affine transformations to adapt mobile native neural network architectures to traditional computer settings.
- Advised by Dr. James Rehg.

Website Administrator / Tutor — Sep. 2021 – Present
Marin Tutors — *Virtual/Remote*

- Tutoring students in a variety of subjects, including Calculus and Algebra.
- Assessing and troubleshooting website problems brought by students, tutors, and other staff.
- Creating, managing, and updating website architecture to increase web visibility and interaction.

Undergraduate 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 infection fatality rates through 30+ models stratified by age, sex, and location through matplotlib, numpy, and pandas.
- Extrapolated inferences about the COVID-19 mortality for 11+ countries across the world.

Projects

Invasive Identifier | *Swift, SwiftUI, Firebase, Python* — Jun 2021 – Present

- Developing an iOS-based app that recognizes invasive plant species in pictures through the use of neural networks.
- Project selected by the Kendeda Building Advisory Board for full funding on an as needed basis, with initial valuation of $500, as part of Georgia Tech's microgrant program.

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

- Converted a regular RC Car to an vision based self-driving car with a Raspberry Pi, Arduino, and piCamera.
- Diagrammed and implemented circuitry using Fritzing software and basic electronic components.
- 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.
- Implemented Canny Lane Detection and Hough Line Transform algorithms for path calculation onboard the Pi.

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

- Lead the development of a web app to assist the hard of hearing navigate urban environments 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.
- Integrated Google Cloud services for real-time speech-to-text translation.

Technical Skills

Languages: Java, Python, C, Assembly, iOS, HTML/CSS, LaTex, SQL
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, PyCharm, IntelliJ, Amazon Web Services
Libraries: OpenCV, Numpy, Pandas, Pytorch, Requests, Matplotlib, Sklearn, Pyserial
Hardware: Arduino, Raspberry Pi, piCamera, AVR MCU's, Fritzing

Awards

Research Grant Awardee - *Kendeda Building Foundation* - Collegiate - *2021*
Think Award Finalist - *FIRST Robotics World Championship* - International - *2017*