Harshil Ratnu

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EDUCATION

University of Rochester	Rochester, New York, USA
Major: Computer Science and Business	Anticipated May 2022

- Dean's List: All semesters   GPA: 3.75/4.00
- Next Genius Scholar: Awarded full tuition scholarship
- Computer Science Undergraduate Council: Business Manager

SKILLS

- Proficient in Java, Swift, Node.js, React.js, ES6, CSS3, HTML5, MongoDB, SQL, Git, Python, C++, C, R
- IRB Certified to conduct experiments involving human participants

WORK EXPERIENCE

Rochester-HCI Lab - Research Assistant   Spring 2020- Present
- Developed a scalable web application architecture for the diagnosis of Parkinson's by video analysis using an ML model.
- Refactored the codebase, integrated Git, updated GCP servers, reducing latency by **50%** according to PageSpeed Insights.
- Instilled necessary UX redesign after reviewing user feedback which boosted site traffic by **300%** as per Google Analytics.
- Utilized multimodal Python scripts and OpenFace Libraries for head pose estimation and facial action unit recognition.

University of Rochester - CETL Academic Tutor   Fall 2019-Present
- Summarized difficult concepts, in **15+** courses (Data Structures, Calculus, HCI, etc.) and helped **over 100** students.
- Provided students with additional examples, resolved assignment doubts and practice problems for exam preparation.

University of Rochester - Teaching Assistant   Fall 2019-Spring 2020
- Executed weekly workshops for Data Structures and Algorithms and helped **80 +** students gain a deeper understanding of concepts like Big-O complexity and creating data structures from scratch.

True Code Masters- Software Testing Intern   Summer 2019
- Interacted with clients, performed requirement gathering for **~20** projects including web and app development.
- Contributed in the SDLC as a unit tester, dry ran the projects and wrote test cases speeding up the process by crucial **10%**.

PROJECTS

PARK Test	**MERN Stack, ReactStrap, Google Cloud Platform**

- An online framework allowing one to perform neurological tests and diagnose Parkinson's without expensive clinic visits.
- Re-engineered the existing static website into a web application using React.js and other MERN stack tools.

Twitter Sentiment Analyst	**Swift, CoreML & CreateML, Twitter API**

- An app that fetches 100 most recent tweets about any handle or hashtag to predict the public emotions about that brand.
- Deployed a custom NLP ML model created with natural language frameworks from CoreML and trained using CreateML.

AR Birthday Album	**Swift, ARKit**

- A birthday gift for best friend – a personalized photo album that comes to life when focused under the camera in the app.
- Tapped ARKit and SceneKit for plane detection of some images on the card to project videos and 3d objects on them.

Blaze Chat	**Swift, Firebase**

- A quick, personal and secure, chatting application built on basic iOS Navigation Controller and UITable Table View tools.
- Explored Cocoapods package manager to integrate Firebase Firestore for Authentication and live cloud database storage.

Todoey	**Swift, Realm**

- An iOS-based task manager empowered with Realm for storage and organization of different color-coded subfolders to help a friend in nursing school learn and administer all her patient medications.

Checkers	**Java**

- Artificial Intelligence Based Checkers which calculates the best possible moves using heuristic minimax and Alpha-Beta pruning, capable of making instant decisions (in less than 0.05 seconds) by employing effective traversals techniques.

Simulation of Google Maps	**Java, Java Swing**

- Java program which efficiently uses the Dijkstra's shortest path algorithm to find the best possible way to get from one node to another in a map plotted using the real-world co-ordinates of any location.