Ashwath Krishnan

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Education

University of Illinois, Urbana-Champaign — Champaign, IL
Master of Computer Science, The Grainger College of Engineering — *January 2024*

PES University — Bangalore, India
Bachelor of Technology in Computer Science — *August 2019-May 2023*
Courses: *Data Structures, Advanced Algorithms, Operating Systems, Object Oriented Programming, Database Systems.*

Skills and Interests

Technical Skills: Python, Java, C, SQL, MongoDB, HTML, CSS, Git, Docker, Kubernetes, AWS, Javascript, Tableau.
Libraries and Frameworks: OpenCV, Scikit-Learn, Flask, TensorFlow, PyTorch, React, Node.js, Express.js

Experience

Zebra Technologies — Bangalore, India
Software Development Intern — *January 2023 – July 2023*

- Employed ReactJS and NodeJS for feature development, developed 8 Firebase Cloud functions for the Device Tracker project, and executed test cases with Jest, achieving a code coverage increase of 18%.
- Worked on a POC to use jest-stare to visualize unit test cases and code coverage for a module. Extended the POC to the entire codebase and test suites, which is now used by the team as it simplifies the assessment of project health.

Soroco — Bangalore, India
Software Engineer Intern — *June 2022 – August 2022*

- Tested data pipelines on Apache Airflow and integrated Great Expectations into Azure Release Pipelines for data quality assurance. Crafted an expectation suite comprising 130 expectations for tables within the SQL database.
- The expectation suite that was created is now being used by the company as a part of all data pipelines.
- Designed and manually verified Azure test cases for multiple data pipelines using Datadog, in intervals of 12 hours.

Projects

Student-to-Student E-Commerce Platform | *MongoDB, ExpressJS, ReactJS, Nodejs* *September 2023 – Present*

- Developing a user-friendly e-commerce website catering specifically to students, facilitating the buying and selling of items among peers. Implemented user authentication and authorization, ensuring data privacy and security.
- Working on search filters to help users quickly find relevant items and filter results based on University and location.

A Ride-Sharing App using Microservice Architecture | *Docker, RabbitMQ, Flask* *January – May 2022*

- Designed 3 microservices - an HTTP server to accept ride requests, a microservice that tries to calculate the best drivers for the user, and a microservice that inserts the data into a MongoDB database.
- Used 2 RabbitMQ message queues to send the data from producers to consumers. A single queue for the ride-sharing consumer microservice and another one for the database microservice.
- Dockerized the application, and ran the docker-compose file on a custom docker network, ensuring more consumer containers can be added by connecting to the same network, making the system highly scalable.

Analysis of Chest CT scans to predict COVID-19 | *Python, PyRadiomics, OpenCV* *January – December 2022*

- Implemented the TransFuse architecture to segment lungs, after which Radiomic texture features were extracted.
- Classified the extracted features to predict COVID-19 using Machine learning models like AdaBoost, KNN, Random Forest, and Decision Trees, with Support Vector Machines achieving the highest accuracy of 92%.
- Improved the interpretability of existing black box models by employing GradCAM and Saliency Maps.

Real-Time Gym Instructor | *ReactJS, Flask, OpenCV, MediaPipe* *April – May 2022*

- Designed and implemented a posture corrector that delivers real-time feedback on user posture, achieving an improvement of 32% in posture alignment.
- Leveraged Mediapipe for precise real-time detection of 32 key human body joints. Established precise joint angle threshold to further refine posture correction, tailored to specific exercises and workouts.
- The project was selected as one of the winners of HashCode 2k21, confirming its effectiveness and innovation.

Research and Publications

A Comparative Analysis of Chest X-Rays and CT Scans Towards COVID-19 Detection | *IEEE INCET 2023*

Sign2Sign: A Novel Approach Towards Real-Time ASL to ISL Translation | *Springer AISC, 2022*

Text-Based Image Retrieval Using Captioning | *IEEE ICECCT 2021*

Awards and Achievements

6-time recipient of the Prof. MRD Scholarship, awarded on a semester basis, each accompanied by a 40% fee waiver.
Distinguished as one of the winners of HashCode 2k21, a regional hackathon featuring over 100 competing teams.
Finalist at the inGenius Hackathon 2022, placing 4th out of 130 teams and receiving a special mention.