VISHAQ JAYAKUMAR

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EDUCATION

Northeastern University, Boston *Jan 2023 - May 2025*
Master of Science in Computer Science *GPA: 3.7*

Sri Sivasubramaniya Nadar College of Engineering, Chennai *Aug 2018 - Apr 2022*
B.Tech, Information Technology *GPA: 3.7*

WORK EXPERIENCE

Aura Intelligent Systems, Boston Sept 2024 – Dec 2024
Machine Learning Intern

- Streamlined **nuScenes** dataset access using **Python** APIs, improving model training speed for perception systems.
- Reduced real-time object-detection latency 25% by optimizing a lightweight detector for **AMD Versal AI Engine (Python, C++)**.
- Converted raw **TI AWR1243** radar data to point clouds using **Python and MATLAB** for perception and sensor fusion.
- Developed radar preprocessing filters and clustering algorithms to enhance **ADAS** object detection.
- Improved object tracking reliability by **30%** by integrating radar and vision-based **clustering** outputs, significantly reducing false positives in autonomous navigation.
- Collaborated with perception and firmware teams to optimize radar-vision fusion synchronization.

LARSEN & TOUBRO (L&T), Chennai Apr 2021 – May 2021
Software Engineering Intern

- Engineered a responsive **Angular + C#** operations dashboard, improving real-time data visibility 30%.
- Designed **RESTful APIs** and integrated backend services to streamline communication in a distributed system.
- Built automated **CI/CD** pipelines using **GitHub Actions** and **CodeDeploy**, reducing deployment time by 60%.
- Strengthened platform reliability by integrating test automation and rollback strategies, cutting release failures by 35%.
- Deployed services on **AWS (EC2, Amazon RDS)** via **CodeDeploy**; set up **S3** artifact storage and **IAM**.
- Added **CloudWatch** logs and alarms to monitor release health, improving mean time to detect issues.

Verzeo, Banglore Jan 2020 - Feb 2020
Machine Learning Intern

- Contributed to the development of a non-invasive prediction model for brain cancer patients.
- Implemented a pre-trained model for **MGMT promoter methylation**, achieving **85%** accuracy with **5-fold CV**.
- Improved accuracy **10%** using **early stopping** and **learning-rate scheduling**.

PROJECTS

Computer Vision System for Camera Calibration and Augmented Reality **GitHub**

- Built **Harris + chessboard** corner pipeline for **pose estimation** in **C++/CMake/OpenCV**.
- Performed **camera calibration** and projected **3D world points** robustly across lighting conditions.

Image Manipulation Tool **GitHub**

- Built **15+** image transforms (crop, resize, rotate, filters) with a **Java Swing** UI for fast editing.
- Improved codebase efficiency **30%** via **MVC** and added 60+ **JUnit** tests for coverage.

Deep Learning based Spatio-Temporal Anomaly Detection in Videos **GitHub**

- Trained a **3D-CNN** classifier (14 classes) with **TensorFlow/OpenCV**; used **data augmentation** to handle imbalance.
- Processed **16,000+** surveillance clips to evaluate model performance and stability.

SKILLS

Programming Languages:	C/C++, Python, JavaScript, Java, C#, TypeScript, SQL, Swift, MATLAB
Databases:	MySQL, MongoDB, PostgreSQL, SQLite, Firebase, Redis, Amazon RDS
Web Technologies:	HTML, CSS, React, Next.js, Angular, Django, Node.js, Bootstrap, REST API, Express
Developer Tools:	Git, JIRA, Postman, JUnit, CI/CD, AWS, iOS SDK, Docker, IntelliJ, Xcode, VS Code
ML/Data Frameworks:	Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch, OpenCV, Keras, Matplotlib