

Aadityaa Rengaraj Sethuraman

asethuraman@umass.edu | <https://aadityaa-rengaraj-sethuraman.vercel.app> | (413) 210-9065

Summary

Aspiring and dedicated Computer Engineering junior at UMass Amherst with hands-on experience in machine learning, data engineering and full-stack development. Short-term goal is to expand expertise in software development and data engineering. Long term, aim to transition into a business-focused role, forging technical knowledge and strategic decision-making to drive technology and business growth

Education

University of Massachusetts Amherst

Bachelor of Science in Computer Engineering (BS), GPA: 3.45;

Anticipated May 2026

Work Experience

Image Analytics (NLP) Intern, Alstom, Bangalore

June – Sept 2024

- Identified the need to automate defect detection in the manufacturing process of trains in the railway industry
- Implemented SLAM (Simultaneous Localizing and Mapping) for the GO2 Robot Dog using a 4D-LiDAR and tested using Gazebo and ROS noetic to create real-time 2D environmental maps for autonomous navigation
- Enhanced the object detection system with YOLOv8 and SORT, implemented using PostgreSQL, Python, OpenCV, and Raspberry Pi 5. Integrated RAG architecture (Llama-2-7b, all-miniLM-L6-v2) with FaissDB for efficient query resolution and vector storage
- Created an intuitive dashboard using Next.js with TypeScript, integrating the backend through FlaskAPI
- Reduced scan time by 2 days (66%) and minimized human error by 30% and improve efficiency by enabling engineers at ALSTOM to quickly replace faulty components

Full stack Developer, Arty Facets, Bangalore

May – June 2024

- Spearheaded the development team in creating an intuitive website for the ArtyFacets Diploma Course, implementing robust server-side rendering using Next.js with TypeScript and designing an engaging user interface with Tailwind CSS to ensure an optimal user experience
- Improved platform security and functionality by integrating NextAuth.js for secure authentication, establishing a Payment Gateway for seamless course transactions, managing multimedia content through Amazon S3, and developing a custom administrative dashboard to track student progress. MongoDB was utilized for efficient and scalable data storage
- Expanded course accessibility by providing online workshops, comprehensive study materials, and additional resources, enabling a 200+ students to engage with the program

Projects

AI Based Escrow Management System, Transaction Analysts, Bangalore

Sept 2024 - Present

- Engineering an AI-powered tool to predict daily escrow limits, automating decisions, and reducing manual intervention
- Utilizing Prophet for forecasting financial transactions and gradient boosting for enhanced predictive accuracy, enabling precise prediction of payment schedules and fund management
- Developing a model to track improvements, graphing the impact on efficiency, demonstrating a significant reduction in processing time and enhancing financial planning for stakeholders

Lidar and Camera Integration, Personal Project

Spring 2024

- Leveraged Python, PySide6, and pyrplidar to develop a real-time object detection and distance measurement tool to integrate the LiDAR data into the camera feed. Implemented YOLOv5 algorithm trained on customized dataset
- Created a novel algorithm to accurately map LiDAR distance and angle data onto the camera's field of view (51° FOV, 12MP Arducam wide-angle). Leveraged OpenCV for image processing and visualization, enabling overlay of distance information on detected objects

Transit App, UMass Hackathon

Spring 2024

- Designed a transit App using Python and JavaScript, using Pioneer Valley Transit Authority's live data API for real-time bus scheduling
- Utilized bus location data to display precise arrival times at campus stops. This model was implemented through Raspberry Pi connected with an LCD Display to show the list of busses and their upcoming arrival times

Machine Learning-Based House Price Estimation

Fall 2023

- Developed a Linear Regression Model using the conservative method, showcasing foundational machine-learning skills
- Demonstrated advanced data analysis skills by developing a regression model on a comprehensive dataset and conducted in-depth model evaluation, including Mean Squared Error calculations and analysis of learning curves

Skills

Languages: Embedded C/C++, Python, JavaScript (ES6+), TypeScript, HTML 5, SQL, MATLAB

Framework/ Technologies: TensorFlow, Keras, OpenCV, React.js, Next.js, NextAuth.js, Bootstrap, Git, Amazon S3 Buckets, pyrplidar, pyQT, LaTeX, SQL, Flask, MongoDB, PostgreSQL, faissDB, GitHub, CSS 3, TailwindCSS, Prophet, YOLO, ROS Noetic, Gazebo

Competencies: Leadership, Hard-working, Communication, Collaboration, Time Management, Critical Thinking, Problem Solving

Activities & Interests

BUILD UMass – (Software Developer), Product Club, Cricket – (Vice-Captain), Chess – (UMass Chess team)