Shiva Kalyan Sunder Diwakaruni

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Education

Clemson University, SC **Aug 2023 - May 2025**
Master of Science in Computer Science **Expected GPA: 4.0**
Coursework: Security in Emerging Systems, Computer Security Principles, Statistics, Database Management Systems

Jawaharlal Nehru Technological University, India **Aug 2016 - Sep 2020**
Bachelor of Technology in Computer Science **GPA: 3.7**
Coursework: Data Structures and Algorithms, Operating Systems, Machine Learning, Object Oriented Programming, Database Management Systems, Artificial Intelligence, Web Technologies, Computer Networks, Computer Architecture

Experience

MathWorks, India - *Senior Associate Software Engineer* **Nov 2020 - Jul 2023**

- Significantly boosted data processing speed on the backend using **C++**, achieving a **50% increase** in visualizing XY data by employing data thinning techniques, particularly beneficial for large time series datasets **above 1M** datapoints.
- Designed a critical feature in the Simulink Data Inspector's map visualization component, implementing a dynamic legend for signal identification and tooltips, enhancing the user experience.
- Leveraged **mapboxgl APIs** in a frontend project to improve marker differentiation, enabling clear distinctions between source, destination, and cursor markers, dynamically updating **3 parameters** - latitude, longitude and time.
- Streamlined user experience with the addition of a **Limits** section in the XY visualization settings panel using **JavaScript**, allowing direct canvas limit adjustments and ensuring persistence across multiple visualizations through efficient database storage.
- Resolved over **50 bugs** discovered during new feature testing and from issues reported by customers. I also performed UI and unit testing for the developed features and defects to ensure robustness and functionality.

Dr K P Supreethi, JNTUHCEH, India - *Research Intern* **Jul 2020 - Oct 2020**

- Conducted an extensive Speech Emotion Recognition (SER) analysis by employing state-of-the-art **Mel spectrograms** and data augmentation methods like time-shifting and time-frequency masking using **Python**.
- Our research findings that achieved an average model **accuracy of 75%** were published in a paper.

MathWorks, India - *Associate Software Engineering Intern* **Jan 2020 - Jun 2020**

- Designed and implemented APIs using **Python** and **JavaScript** for precise extraction of traffic light position data from **3 different road network databases**, and mapped them to lanes in a simulated road network.
- Developed high-precision algorithms for traffic light functionality and lane/junction detection in user-defined road networks, with a specific emphasis on importing and managing traffic light states for **Adaptive Cruise Control** in simulated environments using **MATLAB**.

Sayint.ai, India - *Software Intern* **Nov 2018 - Mar 2019**

- Developed **Python**-based regex rules to extract intent and entity information from customer emails stored in a **PostgreSQL** database.
- Conducted a comprehensive comparison among **RASA, Azure LUIS, and regex-based rules**.
- Created an email classification bot for Teamlease client using RASA, implementing clustering, word-to-vector, associativity, and n-gram analysis to enhance the accuracy of email categorization.
- Achieved a model accuracy rate of **80%** for classifying **5** employee salary-related issues.

Technical Skills

Languages: Java, Python, C, C++, MATLAB, JavaScript, TypeScript
Web Technologies: HTML5, CSS3, Bootstrap, React, PHP, Django, Flask
Databases: PostgreSQL, MySQL, OracleDB
Tools/Frameworks: Git, Jquery, Node.js, React, RASA, Android Studio
Operating Systems: Unix, Linux, Windows, Mac OS.
Other Technologies: Docker, GitLab, WebSockets, Postman, Agile, Jira, Azure, AWS

Notable Projects

Earthquake Alert System | *NASA Space Apps Hackathon* | ***College Level Winner***

- Developed an application that alerts, notifies, guides, and provides a safety checklist for users of an impending earthquake using **Android Studio, PHP, HTML, CSS, Javascript** and **Google Maps API**.

MAVIC (MathWorks Navigation System) | *Hyd HACK Day 2022 Hackathon*

- Built a Microsoft Teams bot harnessing the power of A* algorithm that assists users in navigation by generating a simplified map image with directions within a large workspace or office environment, given the source and destination points using **MATLAB, Typescript** and **Azure**.