Shiva Kalyan Sunder Diwakaruni

Clemson, SC 29634 | (+1) 8647657701 | sdiwaka@g.clemson.edu | linkedin.com/kshiva98 | Portfolio

Education

Clemson University, SC **Aug 2023 - May 2025**
Master of Science in Computer Science **GPA: 4.0**
Coursework: Deep Learning, Applied Data Science, Security in Advanced Networking Technologies, Security in Emerging Systems, Computer Security Principles, Statistics

Experience

Clemson University, VIPR-GS Lab, USA - *Graduate Research Assistant* **Jan 2024 - Present**

- Working on the development of off-road vehicle autonomy within an unstructured environment as part of the Virtual Prototyping of Ground Systems(VIPR-GS) initiative. Collaborating on research with the U.S. Army Ground Vehicle Systems Center (GVSC).

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. 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, SQL, TypeScript
Web Technologies:	HTML5, CSS3, Bootstrap, React, PHP, Django, Flask
Databases:	PostgreSQL, MySQL, OracleDB
Tools/Frameworks:	Git, Jquery, Node.js, React, RASA, Android Studio, mitmproxy
Other Technologies:	Docker, RESTful API's, Microservices, GitLab, WebSockets, Postman, Agile, Jira, Azure, AWS

Notable Projects

Network Traffic Analysis of Third-Party Android Applications: Leveraging ChatGPT for Insights | *Cybersecurity*

- Performed in-depth data analysis on third-party **Android** apps by intercepting and examining their network traffic. Employed an emulator setup specifically targeting apkmirror apps to reveal data collection practices. Automated app installation, fuzzing, and data capture via **mitmproxy** for comprehensive network traffic analysis using **Python**.

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**.