






SHIVA KALYAN SUNDER DIWAKARUNI

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EDUCATION

Master of Science, Computer Science, Clemson University, **GPA: 4.0/4.0**

Aug 2023 - Dec 2024

Courses: Object Oriented Programming, Parallel Architecture, Database Management Systems, Software Design Patterns, Cloud Computing

Bachelor of Technology, Computer Science, JNTUH College of Engineering, **GPA: 4.0/4.0**

Aug 2016 - Sep 2020

Founder of Bits and Bytes: Mentored over **200 students** in Data Structures & Algorithms for interview preparation, Open Source contributor

TECHNICAL SKILLS

Languages: Python, C/C++, GoLang, PHP, Perl, MATLAB, JavaScript, Java, Shell scripting, TypeScript, SQL, NoSQL
Tools/Frameworks/OSes: React, Flask, Node.js, Angular, SpringBoot, JUnit, Linux, Windows, Mac OS, Unix, Git, Perforce, Android Studio
Databases: MySQL, PostgreSQL, Oracle, DynamoDB, MongoDB, Cassandra, Redis
Others: AWS, Kubernetes, Kafka, DevOps, Agile, Jira, CI/CD, Jenkins, REST APIs, Docker, JSON

PROFESSIONAL EXPERIENCE

Graduate Research Assistant | VIPR-GS Lab, Clemson University — GO, MATLAB, ARCGIS

Jan 2024 - Present

- Pioneered development of advanced pathfinding algorithms applying **Multiatribute A* methodology for 4+ environmental factors** in unstructured environments, elevating automation capabilities for autonomous system navigations.
- Executed comprehensive performance analysis and regression testing, ensuring robust algorithm functionality across **1000+ paths**, boosting system reliability and operational accuracy.
- Achieved optimizations resulting in **path solutions shortened by 60%**, elevating efficiency and safety in operational deployments for autonomous robotic systems.

Senior Associate Software Engineer | MathWorks — C++, Dojo, JavaScript(ES6), MATLAB, Python

Nov 2020 - Jul 2023

- **Enhanced performance of Simulink Data Inspector**, a real-time data streaming visualization tool, **by 50% for 1M+ datapoints** employing a concurrent queue service in a **microservices architecture**.
- Directed architectural enhancements for Simulink Data Inspector's map and XY visualizations, achieving a **30-second reduction in data transmission times**, crucial for cloud infrastructure and **big data streaming**.
- Crafted scalable, user-friendly features for data visualization, supporting over **50 concurrent sessions** with **multi-threaded processing**, focusing on interactive click and zoom stream handling.
- Streamlined frontend and backend performance by implementing a stateful design and integrating **publisher-subscriber services**, attaining a **60% reduction in redraws** and **20% decrease in data load**, boosting responsiveness and user interaction.
- **Decreased user errors by 40%** through new interactive map components and **offline caching** capabilities for map visualization, improving usability in environments with limited network connectivity.
- **Resolved 80+ software bugs** using Test-Driven Development (TDD) and test automation in a cross-functional team, aligned with rigorous testing and code review processes.

Software Engineering Intern | MathWorks — MATLAB, JavaScript, Python

Jan 2020 - Jun 2020

- Formulated and deployed high-performance APIs for **Driving Scenario Designer app**, **reducing latency to 10ms**, facilitating real-time traffic management in simulation environments.
- Fortified design and implementation of scalable systems, improving operational reliability and performance in complex network simulation.
- Orchestrated and led as a Scrum Master, leveraging strong communication skills to facilitate team collaboration and knowledge-sharing sessions on advanced technologies (DL, ADAS).

Software Engineering Intern | Sayint.ai — Celery, Flask, PostgreSQL

Nov 2018 - Mar 2019

- Constructed a high-performance API for **Sayint, a speech analytics platform**, using Python Celery and natural language processing to replace routine Flask-based APIs, optimizing resource utilization and **slashing operational costs by \$75,000 annually**.
- Engineered a SaaS-based agent performance monitoring tool for call centers, leveraging sentiment analysis and **text classification with 90% accuracy** utilizing **RASA and Azure LUIS**, deployable across major cloud platforms.

PROJECTS

Earthquake Safety Mobile App — PHP, Android Studio, JavaScript, CSS, Google Maps API

- Developed a mobile app that increased user safety by delivering real-time earthquake alerts, comprehensive safety checklists, and a pop-up map directing users to the nearest safe location, **reducing emergency response time by 50%**.

Movie Review Application — Java SpringBoot, JavaScript, Node.js, React, MongoDB

- Designed and Built an end-to-end full-stack movie review web application enabling user reviews and ratings, utilizing MongoDB for data management and Java Spring Boot for scalable web services and REST API integration.

Real-Time Analytics Platform — Golang, Kafka, Cassandra, Kubernetes, Minikube, Chart.js, HTML, CSS

- Created a high-performance dashboard for analyzing stock market trends of MAANG companies, capable of efficiently handling and visualizing over 1 billion data points using Kafka for real-time data ingestion and Cassandra for rapid read/write operations, with a focus on intuitive UI design.

Finance Tips Bot — Python, PRAW, beautifulsoup, OpenAI, SMTP, langchain, AWS

- Developed a full-stack real-time bot that automates weekly scraping of over 1000 posts from subreddit r/stockmarket employing Serverless AWS Lambda and PRAW. Leveraged OpenAI API in integration with langchain to summarize collected data.

ACHIEVEMENTS & PUBLICATIONS

- Completed **AWS Certified Developer Associate** certification.
- Published research articles on Speech Emotion Recognition (SER) and Brain Tumour Detection emphasizing deep learning methodologies.
- **Winner** of NASA Space Apps Hackathon 2018.