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

Bachelor of Technology, Computer Science, JNTUH College of Engineering, **GPA: 9.11/10** **Aug 2016 - Sep 2020**
Founder of Bits and Bytes: Mentored over **200 students** in Data Structures & Algorithms for interview preparation.

Technical Skills

Languages:	Python, C/C++, MATLAB, GoLang, TypeScript, Java, SQL, NoSQL, Shell scripting, JavaScript, HTML, CSS
Frameworks and OSes:	Flask, Node.js, AngularJS, React.js, Maven, SpringBoot, JUnit, Linux, Windows, Mac OS
Databases:	MySQL, PostgreSQL, OracleDB, MS SQL Server, DynamoDB, MongoDB, Cassandra
Tools and IDE:	Git, VS Code, IntelliJ, Netbeans, Jupyter, PyCharm, Google Colab, Eclipse, Anaconda, Android Studio
Others:	AWS, Kubernetes, Microservices, Postman, Kafka, Agile, CI/CD, Jenkins, RESTful APIs, Docker, JSON

Professional Experience

Graduate Research Assistant | VIPR-GS Lab, Clemson University — Python, MATLAB, ARCGIS **Jan 2024 - Present**

- Pioneered the development of advanced pathfinding algorithms using **Multiattribute A*** methodology for unstructured environments, significantly enhancing automation capabilities for autonomous system navigations.
- Executed comprehensive performance analysis and error correction, ensuring robust algorithm functionality across **1000+ paths**, enhancing system reliability and operational accuracy.
- Achieved optimizations that resulted in **path solutions shortened by 60%**, enhancing efficiency and safety in operational deployments for autonomous robotic systems.

Senior Associate Software Engineer | MathWorks — C++, Dojo, MATLAB, Python **Nov 2020 - Jul 2023**

- Developed a **distributed queue service** enhancing **data processing speeds by 50%** for **1M+ datapoints**, vital for real-time computational scenarios.
- Directed architectural enhancements for large-scale systems, achieving a **30-second reduction in data transmission times**, crucial for cloud infrastructure operations.
- Crafted scalable, user-friendly features for data visualization, supporting over **50 concurrent sessions** with effective **multi-threaded processing**.
- Streamlined frontend and backend performance by implementing a stateful design and integrating publisher-subscriber services, achieving a **60% reduction in redraws** and **20% decrease in data load**.
- **Decreased user errors by 40%** in Simulink Data Inspector through new interactive map components, enhancing user experience and system usability.
- Tackled and **resolved 80+ software bugs**, applying **Test-Driven Development** principles to ensure robustness and reliability, 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, **reducing latency to 10ms**, facilitating real-time traffic management in simulation environments.
- Fortified the design and implementation of scalable and fault-tolerant systems, improving operational reliability and performance in complex network simulations.
- Orchestrated and led as a Scrum Master, facilitating 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 using Python Celery, replacing routine Flask-based APIs, which optimized resource utilization and **slashed operational costs by $75,000 annually.**
- Engineered and launched a scalable cloud-based SaaS solution that **expanded system capacity by 30%**, enhancing the service's capability to manage large-scale operations effectively.

Projects

Multi-Server Chat System with Real-Time Message Queuing — Node.js, WebSocket, RabbitMQ

- Implemented a real-time chat system, integrating RabbitMQ to ensure message consistency across distributed servers.

Replicated Key-Value Storage System — GoLang, Raft, Docker

- Architected a fault-tolerant key-value store in GoLang, implementing Raft for data consistency and Docker for deployment scalability.

Real-Time Analytics Platform — Kafka, Cassandra, Golang, Kubernetes

- Established a dynamic stock market trends and analysis dashboard using Kafka for real-time data ingestion and Cassandra for high-speed read/write operations

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

- Developed a real-time bot, scraping data from the subreddit r/stockmarket, employed PRAW. Used OpenAI API in integration with langchain to summarize collected data. Used AWS Lambda to deploy and scrape every week.

Achievements & Publications

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