Sridharsni Sivakumar

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EDUCATION

Arizona State University | **Tempe, Arizona, USA**
Master's in Information Technology | *Aug 2023 - May 2025*
Sri Krishna College of Engineering and Technology | **Coimbatore, Tamil Nadu, India**
Bachelor's of Technology in Information Technology | *Sep 2019 - May 2023*

WORK EXPERIENCE

Software Development Engineer Intern- Cloud & Full Stack
HyperData API, Remote, United States | *June 2024 - August 2024*

- Developed and deployed a FastAPI, PostgreSQL, and Docker-based admin application on AWS EC2, optimizing Airbyte management with Terraform.
- Automated deployments with Jenkins CI/CD, reducing deployment time by 30%, and improved system reliability with Kubernetes on GCP while managing version control using Git.
- Collaborated with cross-functional teams to debug system performance issues, leveraging AWS CloudWatch, Prometheus, and structured logging for high availability and ETL efficiency.
- Integrated AWS S3 for file storage and AWS Lambda to automate data processing workflows, ensuring an end-to-end cloud-native architecture with Git-based workflow management.

Full Stack Developer
Big Bang Creations, Tamil Nadu, India | *Dec 2021 - Aug 2022*

- Led the development of a high-performance, SEO-optimized web platform using React.js and Next.js, enhancing UI/UX with D3.js visualizations and Vue.js components for interactivity.
- Optimized front-end performance with lazy loading, server-side rendering (SSR), and API caching via Node.js and AWS CloudFront, ensuring seamless scalability and responsiveness.
- Built and maintained backend infrastructure for **MultiLineTech**, a large-scale enterprise, by designing RESTful APIs, integrating secure authentication, and optimizing database queries for efficient data retrieval.

PROJECTS

ATC Error Correction using T5 Transformer Model [Python, PyTorch, Whisper AI, ALMS, Active Learning (AL), JiWER]

- Developed an AI-driven transcription correction system to prevent miscommunication-related airline incidents, reducing risks of ATC misunderstandings that contribute to crashes.
- Integrated Whisper AI for real-time speech-to-text conversion, ensuring high-accuracy transcription before error correction processing.
- Fine-tuned a T5 Transformer model to correct misinterpreted ATC commands, significantly improving communication clarity between pilots and air traffic controllers.
- Optimized inference using ALMS quantization, reducing processing overhead by 30-35%, while Active Learning (AL) continuously improved Word Error Rate (WER) from 50% to 15-20%.

LLM-powered Predictive Trading System [Python, TensorFlow, LLM, DeepSeek]

- Developed a modular ETL pipeline to collect, process, and store high-frequency financial data, ensuring seamless integration with the predictive trading model.
- Built an AI-powered trading engine that processes real-time market trends and generates actionable trading signals for stock performance predictions for Netflix, Nvidia, and Apple.
- Implemented a distributed computing architecture with Kafka and Apache Spark, enabling high-speed market data processing for rapid decision-making.

PUBLICATIONS

- IoT Botnet Attack Detection(First Author)- Published a study on AI-driven IoT botnet detection using big data analytics on Spark, focusing on real-time threat analysis and prediction for IoT devices, improving system monitoring and response capabilities.
  ISSN: 2455–6211
- AI-Integrated Commode for the Ambulant (Second Author)- Developed an AI-enhanced commode with adaptive features for disabled individuals, utilizing sensor technology.   IPI Patent No: 202241010466 A

TECHNICAL SKILLS

Programming Languages: Python, C++, C#, Java, SQL, R
Machine Learning & AI: TensorFlow, Scikit-learn, PyTorch, LLMs (GPT Models), NLP, DeepSeek AI
Data Analysis & Monitoring: Pandas, NumPy, Grafana, ELK Stack
DevOps & Cloud: AWS (Lambda, ECS, DynamoDB, S3), GCP, Jenkins, Docker, Kubernetes, Terraform, CI/CD Pipelines, Kafka
Web Development & APIs: React, Vue, Angular, RESTful APIs, JSON, TypeScript, Microservices
Database & Tools: PostgreSQL, MySQL, Apache Spark, D3.js, Docker