Madhu Lakkoju

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Education

Stony Brook University, State University of New York **Aug 2023 – Dec 2024 (Expected)**
Masters of Science in Computer Science *Stony Brook, NY, USA*
Relevant Coursework: Distributed & Decentralized Systems, Operating Systems, Hybrid Systems, Algorithms

Gokaraju Rangaraju Institute of Engineering & Technology, JNTU **Aug 2017 – Jul 2021**
Bachelor of Technology in Computer Science *Hyderabad, India*
Relevant Coursework: Cloud computing, Databases, Web Technologies & Security, Operating Systems, Networks

Technical Skills

Languages: Java, C#, Core Java, Python, JavaScript, Typescript, SQL, NoSQL, HTML/CSS
Frameworks: Spring Boot, React, Angular, .NET Core, JUnit, Kafka, RabbitMQ, Docker, MySQL, PostgreSQL
Technologies: Amazon AWS, Microsoft Power Platform, Azure cloud, Dynamics 365 CE, Git, GraphQL
Interests: Web Development, Distributed Systems, Object Oriented Programming, Redis, REST, Web3
Certifications: MTA Networking Fundamentals, PCAP: Python, Coursera: Machine Learning, Data Structures

Work Experience

Graduate Research Assistant **Jan 2024 – Present**
Stony Brook University *Stony Brook, NY*

- Researching on **Adaptive Blockchain Systems** ⌂ under supervision of **Prof. Mohammad Javad Amiri** ✎
- Implementing Adaptivity in Transaction management addressing Byzantine failures using **BFT protocols** through Multi-Threading and State Machine Replication with 36 combinations in exploration.
- Reinforcement Learning agent learns optimal architecture combinations for workload, **improving throughput by 27%** over fixed architectures, considering contention, failures, and commit operations in episodes.
- **Tech Stack: Java, Distributed Systems, Threads, Machine Learning, Python, GRPC, TMux, YAML**

Software Developer **Aug 2021 – Aug 2023**
Standard Life UK | Tata Consultancy Services *Hyderabad, India*

- Optimized SQL Queries and Angular UI, significantly **reducing load time from 3.5 to 1.8 seconds** with efficient data structures, async calls, and caching to improve experience of **12 million customers** & enhanced reliability by 22%.
- Designed and implemented event-driven features with **AWS Lambda, SNS & SQS** improving performance by 15-20% and custom **Glue ETL jobs** to perform data synchronizations between customer app and internal CRM systems.
- Employed Agile methods, emphasizing quality enhancement with continuous **code reviews** and **optimizations** during iterative product development in a cross-functional team.
- **Tech Stack: Angular, Typescript, Javascript, Java, REST API, Spring Boot, AWS, SQL**

Full Stack Developer Intern **Mar 2021 – May 2021**
Tata Consultancy Services *Chennai, India*

- Built a Chat service with Web sockets, WebRTC, SSO, and OAuth Services on Angular JS UI and Hibernate ORM.
- Deployed these Service and UI packages in **Amazon Elastic Compute Cloud (EC2)** using CI/CD pipelines
- **Tech Stack: AngularJS, Javascript, Java, AWS, SQL, Hibernate**

Projects 🔗

Leaf Growth Analysis ⌂ | *Python, OpenCV, Machine Learning* | **Advisor: Dr. Y Krishna Bhargavi** ✎

- Analyzed leaf's apparent characteristics to anticipate the growth phase using classifiers like Naïve Bayes, Support Vector Machine, and Decision Trees with a **Weighted Voting Classifier** to increase **accuracy by 14%**.
- Incorporated a Support Queue for Reinforcement Learning along with Digital Image acquisition - OTSU Thresholding, Gaussian Blur, and segmentation to ascertain the features that increased the model's **accuracy** from **51% to 82%**.

Expense Management System | *React JS, Spring Boot, Mongo DB, Hibernate, Java*

- Multi-tier Full-Stack Web Application to display reports & visualizations on **React UI** using **MongoDB NoSQL** and **Spring Boot** to store and process transactions. Hosted on the Heroku server through CI/CD pipelines

Awards and Volunteer Experience

- Active Project member at Advanced Academic Centre (AAC), Computer Society (CSI) & Challenge ACI organizers
- At **Wellness Org NGO**, supported education of underprivileged children by raising funds from potential sponsors.