Mithil Sai Jakka

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Skills

Python, Java, C++, JavaScript, SQL, R, Git, AWS, TensorFlow, Scikit-learn, Angular, Firebase, Docker, Kubernetes, MySQL, PostgreSQL, CI/CD Pipelines, DevOps, PHP, TCP, TCP/IP, unix, Linux, React, Pandas, EC2, SNS, Flask, pytest, JUnit, Coverage.py, Agile, Scrum, GitHub, Gitflow, HTML, CSS, Backend Development, Database Management, Twilio, Github actions, Jenkins, Jira, Airflow, RabbitMQ

Experience

Healthcare Triangle - Software Development Intern — June 2024 - Present

- Achieved 95% faster HL7 message validation, cutting processing from 2 hours to 5 minutes, by designing and implementing an automated Python, Flask, hl7apy, microservice within an AWS Step Functions pipeline, significantly accelerating data availability for clinical analytics.
- Delivered 1.5 hours quicker daily access to validated EHR data for analytics teams and eliminated manual errors by developing an automated validation module, ensuring improved data accuracy and compliance.
- Enhanced module robustness by authoring comprehensive unit tests using pytest, resulting in 92% code coverage and ensuring reliable identification of HL7 message errors before downstream processing.
- Improved microservice efficiency by 150ms per message through performance monitoring, AWS CloudWatch, and targeted code optimization post-deployment on AWS ECS using Docker containers.
- Developed and documented a critical data validation microservice using Python, Flask, Docker, and AWS ECS, Step Functions, CloudWatch, directly contributing to a more reliable and efficient EHR data ingestion pipeline for a key client.
- Collaborated effectively within an Agile/Scrum framework, utilizing Git/GitHub for version control and code reviews, and contributed to sprint planning and daily stand-ups in a healthcare IT environment to deploy HIPAA-compliant solutions.

Advanced Software Engineering - Teaching Assistant — Sept 2023 - April 2024

- Supported students across the software development lifecycle, guiding requirements analysis, design patterns, testing methodologies, and software metrics as outlined in the Advanced Software Engineering curriculum.
- Elevated student project quality by driving a 25% increase in average unit test coverage (to >75%) through targeted workshops and hands-on guidance in JUnit/PyTest, verified using JaCoCo/Coverage.py reports within Canvas.
- Achieved a 35% reduction in critical code quality violations by implementing Checkstyle/Flake8 workshops, and providing consistent code review feedback, enhancing adherence to software engineering best practices.
- Improved team collaboration and code management by instructing students on effective Git workflows (branching, merging) and utilizing SonarLint for early defect detection within IDEs (VS Code, IntelliJ, Eclipse).

Sparks Foundation - Software Development Intern — April 2020 - October 2020

- Optimized back-end API performance by 75%, as measured by Datadog, through refactoring Node.js/Express endpoints to utilize efficient ORM queries with proper indexing and implementing Redis caching.
- Improved user-facing dashboard load time by an average of 60%, validated via browser performance tools and Google Analytics A/B testing, by optimizing React component rendering with useMemo/useCallback hooks and implementing skeleton loading states.
- Reduced user support tickets related to dashboard slowness by over 30% within one month post-deployment, according to Zendesk logs, directly improving user satisfaction and reliability of a critical product feature.
- Developed robust unit tests covering 90 %+ of modified backend code using Mocha and Chai, and wrote integration tests with Supertest, ensuring code quality and preventing regressions for core API functionalities.

Projects

Real-time Financial Data Stream Processing Engine

- Developed a unified data ingestion layer utilizing the Adapter pattern to seamlessly integrate and process financial data from diverse simulated sources with varying formats. Engineered a dynamic and extensible data processing pipeline leveraging the Factory Method pattern for the creation and management of various data transformation and analysis modules.
- Implemented a robust configuration management system using the Singleton pattern to ensure consistent and centralized application settings. Integrated an event-driven architecture via the Observer pattern to enable decoupled notification and handling of real-time market events and analysis results.

Enhancing the Fresno State Digital Landscape: A User Experience Transformation

- Improved measured user satisfaction by 25% through the implementation of three key feature enhancements directly derived from data-driven redesign proposals, which were informed by comprehensive user research involving surveys and interviews with over 500+ participants.
- Facilitated data-driven decision-making by leading user research efforts (surveys, usability tests) with 500+ students and faculty, analyzing qualitative and quantitative feedback to present actionable redesign proposals to stakeholders, leading directly to prioritized feature implementation.

Categorization of Integumentary System Disorders Using Deep Learning

- Achieved 92% classification accuracy by developing, training, and fine-tuning a deep learning model utilizing TensorFlow and the pre-trained Inception v3 architecture for categorizing integumentary system disorders from a challenging medical image dataset.
- Managed the end-to-end ML workflow from dataset acquisition and preprocessing (15,000+ images) to model selection (TensorFlow, Inception v3), training, and evaluation, demonstrating a comprehensive understanding of the deep learning pipeline.

Education

Eastern Illinois University — August 2022 - May 2024

MS in Computer Technology, 4.0 CGPA

Computer Architecture, Advanced Software Engineering, Advanced Computer Security, Advanced Database Technology, Distributed Systems, HCI.

Sathyabama Institute of Science and Technology

B.E in Computer Science and Engineering, 8.74 CGPA

Operating Systems, Data Structures and Algorithms, Computer Networks, Machine Learning, Android Development.

Publications and Certifications

Categorization of Integumentary System Disorders using Deep Learning, IEEE

Assessing Exoplanet Habitability through Data-driven Approaches: A Comprehensive Literature Review, Arxiv

Unraveling the Equifax Data Breach: Lessons Learned and Strategies for Robust Cybersecurity, Arxiv

Microsoft Certified: Azure Fundamentals, Microsoft