

Tharun R. Mopuru

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SUMMARY

Product-focused Full Stack Software Engineer and Master's student with 2+ years of experience engineering secure, scalable backend microservices and high-performance REST APIs. Proficient in Next.js, Python, and TypeScript. Specialized in end-to-end Technical Architecture, Durable Data Models, and Rapid Prototyping. Passionate about building interactive frontend interfaces and user-centric solutions with a focus on code quality, privacy, and craftsmanship.

EDUCATION

- University of Cincinnati** Cincinnati, OH
 - Master of Science in Computer Engineering; GPA: 3.417/4.0* Aug 2024 – May 2026
- Annamacharya Institute of Technology and Sciences** Rajampet, India
 - Bachelor of Engineering in Computer Science and Engineering; GPA: 8.13/10.0* Aug 2019 – Jul 2023

TECHNICAL SKILLS

- Languages:** Python, TypeScript, JavaScript (ES6+), Java, C++, Swift, SQL, Bash
- Frontend:** Next.js, React.js, Angular, Vue.js, HTML5/CSS3, Tailwind CSS, Redux
- Backend:** Node.js, Spring Boot, Flask, FastAPI, REST APIs, GraphQL, SQLAlchemy
- Databases:** PostgreSQL, MySQL, MongoDB, DynamoDB, Redis (Caching), Hadoop, Durable Data Models
- Cloud & DevOps:** Cloud Infrastructure (AWS, GCP), Docker, Kubernetes, Jenkins, Git, CI/CD, Containerization
- AI & LLM:** LLM API Integration, Prompt Engineering, Scikit-Learn, Pandas, NumPy
- Domains & Methods:** Full Stack Development, End-to-End Testing, Rapid Prototyping, Technical Architecture, Agile/Scrum

CERTIFICATIONS

- Azure Developer Associate** – Microsoft
- AWS Academy Graduate - Cloud Foundations - Training** – Amazon
- Android Basics in Kotlin** – Google

EXPERIENCE

- Kaizen Family Dental** USA
 - Software Development Engineer Intern* Oct 2024 – Apr 2025
 - Rapid Prototyping:** Developed and iterated on high-fidelity functional prototypes for internal tools, accelerating the transition from design to MVP by 3 weeks.
 - Secure System Architecture:** Architected a secure, full stack intranet system using PHP and JavaScript, optimizing the frontend and reducing manual data entry by 40%.
 - Data Privacy & Compliance:** Engineered a HIPAA-compliant web application, implementing strict database encryption and durable data models to secure 10,000+ health records.
- WinIT** India
 - Full Stack Software Developer* Jun 2023 – Jul 2024
 - Scalable Microservices:** Developed high-performance Java backend microservices using Spring Boot and implemented caching to optimize system throughput by 30%.
 - User Experience (UX):** Crafted responsive, high-fidelity frontend UI components using Angular and Vue.js, improving page load performance by 20%.
 - DevOps & Automation:** Managed cloud infrastructure and CI/CD pipelines using Jenkins and Git, accelerating end-to-end development cycles by 35%.
- Sanguine Solutions Pvt. Ltd.** India
 - Technical Intern* Jul 2022 – Dec 2022
 - API Design:** Designed and deployed 12+ scalable REST APIs using Python and Flask, supporting 5,000+ daily requests with crisp and versioned endpoints.
 - Security Engineering:** Implemented JWT authentication and request validation, reducing backend security vulnerabilities by 35%.

- **Automated Testing:** Authored 80+ comprehensive unit tests, achieving 85% code coverage and ensuring robust end-to-end performance.
- **Database Optimization:** Optimized complex SQL data models and indexing strategies, reducing API response latency by 20%.

- **Pragmatic Solutions Pvt. Ltd.**

Software Developer Intern

India

Mar 2022 – Jun 2022

- **System Design:** Built 8 FastAPI microservices to power real-time frontend dashboards for 1,000+ active users.
- **Data Integrity:** Integrated SQL databases with strict data models via SQLAlchemy, reducing API data failures by 25%.
- **Operational Efficiency:** Automated cloud infrastructure tasks using Bash scripts and containerization, increasing development workflow speed by 40%.

PROJECTS

- **Amazon Chime Meeting Assistant Bot**

Full-Stack Serverless Application

- **Serverless Architecture:** Built a scalable, event-driven API using AWS Lambda and cloud infrastructure to automate voice and text workflows.
- **Real-Time Processing:** Integrated Amazon Chime SDK to process live event streams and trigger backend actions.
- **Secure Data Storage:** Designed encrypted NoSQL data models using AWS DynamoDB, optimizing retrieval speeds by 40% for consumer discovery.

- **Secure Patient Management System**

Web Application

- **Security & Privacy:** Developed a HIPAA-compliant full stack system with end-to-end encryption for data at rest and in transit.
- **Access Control:** Implemented granular RBAC to enforce least-privilege access to sensitive database records.
- **Performance:** Refactored SQL queries and implemented server-side caching, achieving a 30% improvement in system response time.

- **Fake Job Detection Using Machine Learning Approach**

Data Mining and Classification Project

- **Machine Learning Classifiers:** Developed a comparative system using XG Boost, Cat Boost, Gradient Boost, Random Forest, and Decision Tree to identify fraudulent postings in social media.
- **Data Engineering:** Engineered a high-efficiency pipeline using the Employment Scam Aegean Dataset (EMSCAD), processing 18,000 samples and optimizing 7 key categorical attributes to reduce training time without requiring complex NLP[cite: 41, 128, 133].
- **Full Stack Integration:** Built a functional web application using the Flask framework in a Python environment, integrating a MySQL database for secure user data management and real-time model prediction.
- **Performance Optimization:** Achieved high accuracy and low computational complexity by leveraging ensemble learning techniques, effectively addressing challenges in Online Recruitment Fraud (ORF)[cite: 337, 592, 597].

- **Social Media Content Moderator**

Hackathon – Revolution UC

AI-Driven Safety Tool (Built with Gemini, MongoDB, Python, Streamlit)

- **AI Moderation:** Harnessed the Google Gemini API to build an automated content moderation system that analyzes and categorizes user posts to flag offensive text, hate speech, and misinformation.
- **System Resilience:** Architected a real-time response pipeline to handle large volumes of content, balancing AI automation with ethical oversight to minimize false positives and maintain user safety.
- **Interactive MVP:** Developed an end-to-end prototype using Streamlit and MongoDB, allowing users to save posts while providing transparent, AI-driven analysis of feed safety.

ACHIEVEMENTS & ACTIVITIES

- **Hackathon – Revolution UC:** Led an Agile team to build an innovative ML-based content moderation tool using LLM APIs. Won Best Innovation award.
- **Freelance Developer:** Delivered custom high-performance web solutions using AWS cloud infrastructure, reducing client operational costs by 20%.