

# Tharun R. Mopuru

✉ tharunreddymopuru@gmail.com — ☎ (513) 253-3148 — Cincinnati, OH 45220

## 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

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| <b>University of Cincinnati</b>  | Cincinnati, OH      |
| • <i>Master of Science in Computer Engineering; GPA: 3.417/4.0</i>                   | Aug 2024 – May 2026 |
| <b>Annamacharya Institute of Technology and Sciences</b>                             | Rajampet, India     |
| • <i>Bachelor of Engineering in Computer Science and Engineering; GPA: 8.13/10.0</i> | 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

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

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### • 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

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- **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%.