

Tharun R. Mopuru

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Summary

Innovative Software Engineer and Computer Engineering Master's student with a strong object-oriented skillset (C++, C#, Java) and 3+ years of experience delivering highly scalable systems. Dedicated to Community, Respect, and Customer Focus, with expertise in integrating cryptography into production systems, applying AI/ML techniques to software, and conducting rigorous reliability analyses. Proven ability to work independently to design, develop, analyze, document, and support testing of complex subsystems while championing Agility, Excellence, and Innovation in full life-cycle development.

Education

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

Technical Skills

- **Languages & Architecture:** C, C++, C#, Rust, Java, Python, Object-Oriented Design, Microservices
- **AI & Security:** AI/ML Techniques, Secure AI Practices, Cryptography, Encryption, Key Management, Digital Signatures
- **Analysis & Reliability:** Root Cause Analysis, FMEA, FRACAS, Trend Analysis, Fault Isolation, Troubleshooting Procedures
- **DevOps & Lifecycle:** CI/CD, Docker, Kubernetes, Splunk, Design for Manufacture, Prototyping, Technical Activity Tracking
- **Frontend & Web:** Angular, React.js, JavaScript/TypeScript, RxJS, HTML5/CSS3, Tailwind CSS

Certifications

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

Experience

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| • Kaizen Family Dental | USA |
| <i>Software Development Engineer Intern</i> | <i>Oct 2024 – Apr 2025</i> |
| ○ Prototyping & Troubleshooting: Developed prototypes to retire key development risks and supported the analysis, development, and review of fault isolation and troubleshooting procedures, accelerating the transition to MVP by 3 weeks. | |
| ○ Secure System Architecture: Architected a secure intranet system using PHP and JavaScript, communicating clearly with personnel to optimize the frontend and reduce manual data entry by 40%. | |
| ○ Cryptography & Secure Systems: Engineered a HIPAA-compliant web application, integrating cryptography into production systems including strict database encryption and key management to protect 10,000+ records. | |
| • WinIT | India |
| <i>Full Stack Software Developer</i> | <i>Jun 2023 – Jul 2024</i> |
| ○ Object-Oriented Development: Applied a strong object-oriented skillset to execute complex programming tasks, developing high-performance backend microservices and integrating C++ components to optimize throughput by 30%. | |
| ○ Customer Focus & UX: Reviewed customer specifications to craft responsive UI components using Angular and Vue.js, improving page load performance by 20% while championing Agility and Innovation. | |
| ○ Technical Activity Management: Responsible for technical activity and completion of assigned tasks on time and budget, maintaining regular reports of progress and status for cloud infrastructure operations and CI/CD pipelines. | |
| • Sanguine Solutions Pvt. Ltd. | India |
| <i>Technical Intern</i> | <i>Jul 2022 – Dec 2022</i> |

- **System Design & Analysis:** Designed, developed, analyzed, documented and supported testing of 12+ scalable APIs, applying independent judgment to evaluate supplier components and support 5,000+ daily requests.
- **Digital Signatures:** Implemented robust cryptography via JWT authentication (digital signatures), proactively mitigating risks and reducing backend security vulnerabilities by 35%.
- **FRACAS & FMEA Support:** Authored 80+ comprehensive unit tests and actively participated in the Failure Reporting, Analysis, and Corrective Action System (FRACAS) engineering process, achieving 85% code coverage.
- **Database Optimization:** Conducted trend analysis to optimize 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

- **Customer Specifications:** Reviewed customer specifications and requirements, working independently to develop 8 microservices that best supported real-time dashboards for 1,000+ active users.
- **Data Integrity:** Integrated SQL databases with strict data models, determining associated metrics to reduce API data failures by 25%.
- **Operational Efficiency:** Conducted trend analysis and supported engineering with reliability related design analysis, automating infrastructure tasks to increase development workflow speed by 40%.

Projects

• Amazon Chime Meeting Assistant Bot

Full-Stack Serverless Application

- **Subsystem Integration:** Communicated clearly to build a scalable, event-driven platform, integrating software subsystems to process live event streams and trigger backend actions.
- **Real-Time Processing:** Integrated Amazon Chime SDK to process live event streams and trigger backend actions based on strict customer specifications.
- **Design to Cost:** Designed encrypted NoSQL data models using AWS DynamoDB, providing budget and cost input to optimize retrieval speeds by 40% and support design for manufacture requirements.

• Secure Patient Management System

Web Application

- **Cryptography & Security:** Integrated cryptography into production systems, developing a HIPAA-compliant application with end-to-end encryption and key management for data at rest and in transit.
- **Access Control:** Implemented granular RBAC to enforce least-privilege access, ensuring compliance with strict data protection requirements.
- **Performance Analysis:** Refactored SQL queries and utilized analysis software to implement server-side caching, achieving a 30% improvement in system response time.

• Fake Job Detection Using Machine Learning Approach

Data Mining and Classification Project

- **AI/ML Techniques & Trend Analysis:** Developed a comparative system using Gradient Boost and Random Forest to apply AI/ML techniques for fraud detection.
- **Data Engineering:** Engineered a high-efficiency pipeline using the EMSCAD dataset, determining associated metrics and developing databases to process 18,000 samples.
- **System Operationalization:** Built a functional web application, integrating a MySQL database for secure user data management and real-time model operationalization.

• Social Media Content Moderator

Hackathon – Revolution UC

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

- **AI System Operationalization:** Applied AI/ML techniques to software systems, utilizing secure AI practices to build an automated intent detection system for analyzing and flagging offensive content.
- **Scalable System Resilience:** Architected a real-time response pipeline, acting with Excellence to balance AI operationalization with strict ethical oversight and deterministic rules-based processing.

Achievements & Activities

- **Hackathon – Revolution UC:** Led a team to build an innovative ML-based tool, participating in the preparation of proposals and technical presentations. Won Best Innovation award.
- **Freelance Developer:** Provided technical knowledge and assistance to clients, delivering high-performance web solutions that upheld a culture of Integrity and Customer Focus.