TRINADH MUSUNURI

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SUMMARY

Backend and Full Stack Engineer with research experience building scalable backend systems and cloud-deployed web applications. Strong in Node.js, RESTful APIs, AWS, performance optimization, and translating research prototypes into production-ready services.

PROFESSIONAL EXPERIENCE

Central Michigan University — Research Assistant   **Sep 2025 – Present**

- Replaced an inefficient evolutionary algorithm with a gradient-based optimization method.
- Achieved **50$\times$ faster** execution by reducing runtime from 30–60 minutes to under 2–3 minutes.
- Designed and deployed optimized backend services and experimental pipelines on Google Cloud Space.
- Collaborated with faculty researchers to translate research code into stable, maintainable backend systems.
- Applied software engineering best practices including modular design, version control, and performance profiling.

TECHNICAL SKILLS

Frontend: HTML, CSS, JavaScript (ES6+), React.js, Bootstrap
Backend & APIs: Node.js, Express.js, RESTful APIs, API Security, Performance Optimization
Databases: MongoDB, MySQL, SQL, Relational Database Design
Cloud & DevOps: AWS (EC2, S3, IAM, Load Balancing), Cloud Deployment, CI/CD Concepts
System Design: Client–Server Architecture, Scalable System Design, Modular Backend Design
Core CS & Tools: Data Structures, Algorithms, Git, Docker, Linux, Postman

PROJECTS

SkillSwap — Full Stack Skill Matching & Messaging Platform   **2025**

- Built a full-stack skill-matching platform with real-time peer-to-peer messaging.
- Designed secure RESTful APIs and WebSocket-based communication for low-latency interaction.

M-Sum-PAI — AI-Powered Summarization Platform   **2025**

- Developed a cloud-based system to summarize text, PDFs, audio, and video content.
- Built scalable RESTful APIs and deployed backend services on AWS for real-world usage.

CERTIFICATIONS

Generative AI by Google Cloud   **Nov 2024**
Vertex AI, scalable ML workflows (30% efficiency improvement)

AWS Cloud Technical Essentials   **Nov 2023**
EC2, S3, IAM, RDS, cloud architecture fundamentals

Web Development Certification   **Aug 2023**
HTML, CSS, JavaScript, PHP, React.js, DBMS

EDUCATION

Master of Science in Computer Science — Central Michigan University   **May 2027**
College of Science and Engineering
Relevant coursework: Advanced Algorithms, Cloud Computing, Web Technologies, Machine Learning