SHASHANK BAGDA

Software Engineer | Full-Stack (Backend-Focused) | DevSecOps

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GitHub: github.com/ShashankBagda **Portfolio:** shashankbagda.github.io

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SUMMARY

Master's student in Software Engineering with hands-on experience building **scalable backend** and **full-stack systems,** distributed service architectures, and performance-optimized APIs. Proficient in **C++, Python, and Java**, with experience developing cloud-ready services, secure REST APIs, and end-to-end applications. Strong foundation in **DevSecOps**, secure **SDLC**, and system performance optimization, with a focus on building reliable, maintainable, and production-oriented software systems.

EDUCATION

NATIONAL UNIVERSITY OF SINGAPORE | ISS — **Aug 2025 - Sep 2026**

Master of Technology - Software Engineering

- Coursework: Software Architecture & Design, Cloud-Native & Platform Engineering, DevSecOps, Secure SDLC, Agile Methodologies

MARWADI UNIVERSITY — **Sep 2021 - May 2025**

Bachelor of Technology - Information and Communication Technology

- Honors: First Class with Distinction

PROJECTS

1. **Gomoku – Online Multiplayer Game**
   - Built a distributed backend for real-time multiplayer gameplay with secure REST APIs.
   - Implemented game-state management and matchmaking for concurrent users.
   - Designed modular services for scalability and maintainability.
2. **Handwriting to G Code**
   - Developed an AI-driven pipeline converting handwritten input into machine-readable control instructions.
   - Implemented preprocessing workflows to improve robustness and output reliability.
3. **Lab Component Manager**
   - Built a backend system for managing laboratory assets and workflows.
   - Implemented CRUD APIs and access control for operational efficiency.

RESEARCH EXPERIENCE

INDIAN INSTITUTE OF TECHNOLOGY - GUWAHATI

Research Intern — **May 2024 - Aug 2024**

- Designed scalable system architectures for **AI workloads**, reducing training time and GPU utilization.
- Improved system performance using **parallel processing** and **in-memory computing** on multicore platforms.
- Built and optimized hybrid processing pipelines to improve inference responsiveness.
- Performed system integration and performance tuning using the **SIAM simulator**.
- Developed high-performance utilities in **C++** and **Python** to streamline computational pipelines.

INDIAN INSTITUTE OF TECHNOLOGY - GUWAHATI

Research Intern **May 2023 - Jun 2023**

- Implemented security and reliability mechanisms in multicore **Network-on-Chip (NoC)** systems.
- Conducted threat modeling and performance analysis to identify system-level vulnerabilities.
- Optimized on-chip communication using dynamic routing algorithms in **C++** and **Python**, improving latency and throughput.
- Evaluated system performance using **GEM5** and **Garnet simulators**.

SKILLS

Programming & Software Development

- Languages: C++, Python, Java
- Backend & APIs: REST APIs, Java (JSP/Servlets), MySQL
- Web Technologies: ReactJS, HTML, CSS, JavaScript

Systems & Performance

- Distributed & Multicore Systems, Performance Optimization, System Profiling
- Secure SDLC, DevSecOps, Agile Development Practices

Machine Learning (Supporting)

- Frameworks: PyTorch, TensorFlow
- Libraries: Pandas, NumPy, Matplotlib

Hardware & Embedded (Supporting)

- Computer Architecture, Digital Systems
- Embedded Systems: Arduino, Raspberry Pi, ESP8266/ESP32, Zigbee
- Circuit Design & Simulation: PCB Design, Logic Design

INTELLECTUAL PROPERTIES

Patent

- Method for Converting Handwritten Characters into Machine-Readable Instructions (202421033236)

Copyright

- Telecom Architecture (8416/2023-CO/SW)

AWARDS, HONOURS & ACHIEVEMENTS

- Student Startup and Innovation Policy (SSIP) Hackathon 2022 - Second Highest Honour (Government of Gujarat, India)
- Club Founder Award 2024 - Circuitology Club, Marwadi University

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LEADERSHIP & STEM ACTIVITIES

- Chair - IEEE MEFGI Student Branch (2024): Led student operations, coordinated technical events, and collaborated with industry professionals.
- Founder - Circuitology Club (2021): Built a 110+ member technical community, secured USD 3,500+ in funding, and organized 30+ technical sessions and STEM outreach programs.