SAMARTH BHATIA

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linkedin.com/in/samarthbhatia89 https://samarthbhatia.github.io/my-portfolio/

EDUCATION

Master of Science - Computer Science and Engineering

Politecnico di Milano (Milan, Italy)

Sept 2024 - Jun 2026 (Expected)

Bachelor of Technology - Information Technology

Maharaja Agrasen Institute of Technology (New Delhi, India)

Dec 2020 - Jul 2024 GPA: 9.38/10

EXPERIENCE

Full Stack Developer Intern

Achintya Solutions

Oct 2023 - Jan 2024 Delhi, India

- Enhanced backend data processing efficiency by optimizing database queries and implementing server-side caching, reducing data retrieval times by 30%, which contributed to a more responsive user experience across the platform.
- Redesigned the platform's architecture to support modular and scalable deployments, enabling the EdTech application to handle increased traffic seamlessly, leading to a 15% boost in user retention and reliability.
- Collaborated with cross-functional teams to implement API optimizations and efficient data pipelines, ensuring minimal latency and high performance across all user interactions.
- Built and deployed a low-latency real-time messaging system using WebSockets and server optimizations, reducing message delivery times and enhancing user interaction by 40% through highly responsive communication channels.
- Integrated a high-throughput payment processing service with enhanced security protocols and load balancing, resulting in a 25% increase in transaction efficiency and a 10% reduction in payment-related security incidents.

SKILLS

Languages: C/C++, Java, Rust, Python, JavaScript, MySQL
Frameworks: React.js, Express.js, Node.js, MongoDB
Other: Bootstrap, Tailwind CSS, JIRA, Linux, Git/GitHub

ACHIEVEMENTS

- 1st and 3rd positions in the IT Department at MAIT in 4th and 5th Semesters with CGPA 9.58 and 9.57 respectively.
- Solved over 220 LeetCode problems using C++ and MySQL, achieving an impressive acceptance rate of 63.7%. (Leetcode)
- Secured Runner-Up position at the G20 MAIT Hackathon for developing Scrap Sage, a memory allocation snapshot tool.
- Won SIH MAIT Hackathon for creation of a Smart Drone for object detection.

PROJECTS

MercuryTrade

Nov 2024 Milan, Italy

- Designed a custom lock-free memory allocator achieving <500ns allocation latencies and zero fragmentation, with specialized memory pools and cache-line alignment (64-byte) optimized for high-frequency trading systems processing >1M orders/second.
- Engineered an order book management system with thread-safe concurrent access utilizing custom memory arenas and zero-copy operations, featuring $\mathcal{O}(1)$ order insertion/modification and strict price-time priority matching engine with <10μs order processing latency.
- Developed a real-time trading platform with atomic operations and WebSocket streams, achieving 99.9% of market data processing and visualization operations within 50μs latency.

CoreLite-OS

May, 2024 Delhi, India

- Developed a lightweight Rust-based kernel (640KB binary size) with essential functionalities, achieving 20ms boot time and 60 FPS VGA text output on bare metal hardware.
- Implemented paging and dynamic memory allocation, integrating heap management with a custom allocator to optimize memory usage by 30%..
- Created reliable interrupt handling mechanisms, reducing interrupt latency by 40% and achieving 1000 Hz timer resolution, with 99.9% keyboard input accuracy

Scrap-Sage

Feb, 2023 Delhi, India

- Developed a cross-platform memory allocation snapshot tool in C++, using Windows API for efficient process capture, reducing snapshot time by 30%.
- Engineered Windows-based diagnostic software that identified and resolved 3 critical crash-causing inefficiencies in system processes.

COURSES

- Databases
- Advanced Computer Architectures
- Computing Infrastructures
- Computer Security
- Advanced Algorithms and Parallel Programming
- Distributed Software Development