Mehul Kumar

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EDUCATION

Banaras Hindu University **Varanasi, Uttar Pradesh, India**
Master of Science in Computer Science - 9.0 CGPA *2020-2022*
University of Allahabad **Prayagraj, Uttar Pradesh, India**
Bachelor of Science in Computer Science *2017-2020*

SKILLS

Technical Skills:C++, STL, Object-Oriented Programming, Multithreading, Data Structures, Algorithm Design, Software Design Principles, Image Processing using NVIDIA SDK, GTest framework, IPC, ZeroMQ, REST APIs, Real-Time Systems, MVC Architecture, Event Driven Architecture.
Domain Knowledge: Routing Algorithm Design for Opportunistic Networks, Delay/Disruption-Tolerant Networking (DTN), Performance Optimization, Scalable Software Architecture, Real-Time Systems, Research Publication (Springer Conference), Automation in Build and Deployment Pipelines, Software Development Lifecycle (SDLC), Cross-Functional Team Collaboration.

PROFESSIONAL EXPERIENCE

Leica Microsystems **Bengaluru**
Software Engineer – Medical Device Domain *May 2023 – Present*

- Designed and developed high-performance, multithreaded application modules using modern C++ in a real-time, medical-grade environment, improving performance by **30%** and reducing latency by **25%.**
- **Export Quality Controller Feature:** Led implementation of an export quality control feature using **ZeroMQ** for inter-process communication (IPC) and **NVIDIA Video Codec SDK**, significantly reducing video size by up to **60%** and boosting user flexibility.
- **Elapsed Timer:** Developed a **reusable utility class** to schedule delayed callbacks, now adopted in over **80%** of time-sensitive application modules like UI decorators. This reduced timing-related bugs by **40%** and significantly improved **code reusability and maintainability**.
- Contributed to the **design**, **testing**, and **debugging** of real-time modules, applying rigorous dev testing, unit test coverage using Google Test (**GTest**), and code refactoring aligned with internal coding standards.
- Collaborated with cross-functional teams to design and optimize **real-time systems** for medical-grade applications. Utilized a robust **CI/CD pipeline** with tools like **Git**, **Bitbucket**, **Jira**, and **TeamCity** to automate builds, deployments, and version control.

Merkle **Gurugram, India**
Salesforce Commerce Cloud (SFCC) Developer *Aug 2022 – Apr 2023*

- **Automation Cartridge to Streamline Inventory Allocation:** Independently designed and implemented automation cartridges integrated with **Business Manager (BM)** to streamline inventory allocation and bulk updates of site-specific product attributes. **Eliminated manual updates** by enabling changes for **50–60 products in a single API call**, significantly enhancing operational efficiency across client projects.
- **Unified Interface Cartridge for Multi-Site Product Attribute Management:** Developed a **BM cartridge** to allow administrators to update attributes of multiple products through a unified interface, removing the need to switch between sites. Enabled efficient updates for up to **50 products per operation**.
- Integrated backend systems using **SOAP API**, **OCAPI**, and extensively tested via **Postman**, while following the **MVC architectural pattern** to build a robust automation pipeline used in production.
- Solutions reduced manual workload by over **70%**, improved scalability for merchandising teams, and are actively deployed in multiple client storefronts.

PROJECTS & PUBLICATIONS

Springer Nature Switzerland **Varanasi, Uttar Pradesh, India**
Context-Aware Routing in Opportunistic Networks *January 2022 - July 2022*

- Published in the **ANTIC 2022 International Conference**; proposed a frequency-based, context-aware routing protocol for Opportunistic Networks, originally developed as part of my Master's thesis and subsequently refined for publication.
- Demonstrated **up to 89% lower buffer-average time** and **up to 56% higher delivery probability** by leveraging node contact frequency as a heuristic for forwarding decisions.
- Contributed to algorithm design, Java-based simulation, and comparative evaluation, showcasing expertise in **Delay Tolerant Networking, algorithm optimization**, and performance analysis.