BHARATHI PANDURANGAN

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EDUCATION

Rochester Institute Of Technology | **GPA: 3.78/4.0**　　　　　　　　　　　　　　　　Rochester, NY, USA
Master of Science in Software Engineering　　　　　　　　　　　　　　　　*Aug 2023 – May 2026 (Expected)*
Courses: Advanced Java, Model-driven development, Database design implementation, Software Architecture, Software Quality Assurance, Computer Networks, Collaborative Software Development, Foundations of Web Technologies

Pondicherry University | **GPA: 3.64/4.0**　　　　　　　　　　　　　　　　　　　　Pondicherry, India
Bachelor of Computer Applications　　　　　　　　　　　　　　　　　　　　　　　　*Aug 2019 – Dec 2022*

TECHNICAL SKILLS

Programming Languages: C++, C, Java, C#, Golang, Python, Bash, MATLAB, Perl, JavaScript (ES6), TypeScript, XML, HTML5, CSS
Frameworks & Libraries: Spring Boot, Angular, Hibernate, React, React Native, JUnit, AssertJ, Pytest, gTest, Qt, Mockito
Tools & Platforms: Docker, Kubernetes, Terraform, Jenkins, Git, Perforce (P4V), Postman, Insomnia, CMake, Gradle, Xamarin
Cloud & DevOps: AWS, Azure, Apache Kafka, Hadoop, CI/CD Pipelines, Infrastructure as Code (IaC), Helm, Docker Compose
Security & Monitoring: OAuth 2.0, JWT, RBAC, Prometheus, Grafana, SonarQube, GDB, Swagger/OpenAPI
Operating Systems: Windows, Linux (Ubuntu)
Databases: MongoDB, PostgreSQL, MySQL, Oracle, AWS RDS, SQLite

EXPERIENCE

Software Developer - Co-op　　　　　　　　　　　　　　　　　　　　　　　　　Fairport, NY, USA
Tracsis Rail Technology Solutions　　　　　　　　　　　　　　　　　　　　　　　*Jan 2025 - May 2025*
- Contribute to industry-leading dispatching, monitoring, and analytics applications using **C++, C#, .Net, Perforce(P4V), Visual Studio**, and **Xamarin** in a fast-paced **Agile** environment; design and implement **REST APIs.**
- Collaborate on projects involving **SQL**, **cloud architectures (Azure)**, and **predictive analytics solutions.**
- Actively participate in **Agile methodologies**, including standups and **sprint** planning to improve team collaboration.

Junior Software Developer Intern　　　　　　　　　　　　　　　　　　　　　　Pondicherry, India
Technos Inc.　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Apr 2022 - Aug 2022*
- Implemented a real-time **TCP, Web**, and **IPC-based client-server system** using **C++ and Qt Library.**
- Configured **CI/CD pipelines** in **Jenkins** & **CircleCI**, improving deployment efficiency by **50%.**
- Implemented **Infrastructure as Code (IaC)** using **Terraform** to streamline **cloud** deployments. Worked with **DevOps** teams as part of a 4-member **Agile software development** team, contributing over **10,000 lines** of code.

PROJECTS

Highly Fault-Tolerant Tweet Analyzer | *C++, Apache Kafka, Boost, SQLite, gRPC, Docker, Kubernetes*　　Mar 2024 - May 2024
- Developed a **C++ Kafka Consumer** using **Boost Asio** and **gRPC** to process real-time tweet sentiment analysis.
- Built a **multi-threaded consumer**, boosting throughput by 40% for parallel tweet processing.
- Optimized **Kafka topic replication** (3 brokers) to ensure no data loss in case of node failures, enhancing fault tolerance.
- Utilized **SQLite** for lightweight, fast data storage of analyzed tweets, improving retrieval efficiency for real-time dashboards.
- Applied **NLTK and Vader** for sentiment analysis, achieving 85% accuracy and reduced sentiment analysis latency by 30% using **batch processing** and **Kafka Streams API**.
- Integrated **CI/CD pipelines with Jenkins** for testing and **GDB** for debugging and memory leak detection.

Price Comparison Plus Desktop Application | *C++, JavaScript, REST, CMake, Apache Kafka, SQLite*　　Jan 2024 – May 2024
- Developed a desktop application using **C++** and **JavaScript** for the User interface with a modular architecture and **CMake**. Used **SQLite** for local data management and integrated **CI/CD** principles for builds, tests, and deployments.
- Implemented a **Single Sign-On (SSO) system** and **RESTful APIs** for seamless communication between modules, leveraging **Apache Kafka** for message queuing and followed **Agile** principles for efficient team collaboration.
- Ensured high Software Quality with **97% code coverage** through **Google Test, Codecov** and **SonarQube.**

HTTP Proxy Server and Client | *C++, HTTP, LRU Cache, Conditional GET*　　　　　　　Jan 2023 - Apr 2023
- Developed an **HTTP proxy server** with **LRU caching** to store and forward web pages efficiently.
- Implemented **Last-Modified HTTP header** and **Conditional GET** to optimize cache updates.
- Managed cache entries using **last access time**, reducing redundant requests and improving performance.

Real-Time Signal Compression and Analysis System | *C++, MATLAB, MEX, FFTW, Signal Processing Toolbox*　Jan 2024 – May 2024
- Built a real-time signal processing system using **C++** for compression (Huffman, RLE) and **MATLAB** for analysis and visualization.
- Integrated C++ with MATLAB via **MEX**, and used **FFTW** and **Signal Processing Toolbox** for FFT/time-domain analysis.
- Benchmarked compression performance and visualized signal fidelity trade-offs.

CERTIFICATIONS AND COMMUNITY INVOLVEMENT

Active Member of the **Society of Software Engineers** student organization at RIT, Women in Computing (WiC)

Fundamentals of Accelerated Computing with CUDA C/C++

Google Data Analytics Professional Certificate