Gaurav Kulhare

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New York, United States - Willing to relocate within United States

EDUCATION

Stony Brook University — August 2023 - May 2025
Masters in Computer Science | GPA - 3.85/4.00 — *Stony Brook, NY*

Vishwakarma Institute of Technology, Savitribai Phule Pune University — August 2017 - May 2021
Bachelor of Engineering in Computer Science | GPA - 8.02/10.00 — *Pune, India*

TECHNICAL SKILLS

Languages: Rust, Java, Python, C/C++, C#, Typescript, Javascript, SQL, JavaScript, Go, HTML/CSS
Cloud, Infrastructure, Databases and Web: React.js, Redux, SpringBoot, Apache Airflow, Express.js, Node.js, AWS : EC2 S3 Lambda DynamoDB, Next.js, Docker, MongoDB, Kubernetes, Linux , Windows
Software Development: Software Development Life cycle (SDLC), Object Oriented Programming (OOP), Agile, Git

EXPERIENCE

Research Foundation for The State University of New York — May 2024 – August 2024
Research Project Assistant — *Stony Brook, NY*
- Implemented a **Rust** crate for Secret Sharing, along with configurable **Python Scripts** for deployment. Improved cryptographic security in **Node** servers with zero-knowledge commitments and reduced vulnerability risks by 95%.
- Constructed a **scalable secret-sharing application** utilizing **GRPCs**, **Docker** and **Kubernetes**, achieving high availability, providing complete abstraction and reducing recovery latency by 60%.

LTIMindtree — August 2021 – July 2023
Software Engineer — *Mumbai, India*
- Built a smart-meter data management platform using **React**, **Redux**, **Typescript** on **front-end** and **Spring Boot using Java** on the **back-end**, handles upward of 100k MAU sporting a load time less than 2s, generating $45,000+ in revenue.
- Optimized performance with caching and refactoring in **PostgreSQL**,reducing load times by 35% and code size by 20% using procedures in **PL/SQL**.
- Automated **CI/CD pipelines with Jenkins**, secured **REST API** endpoints using **OAuth 2.0 and JWT**, improving efficiency by 50%.

Clairvoyant Bizinfo — January 2021 – July 2021
Machine Learning Engineer — *Pune, India*
- Deployed and optimized **ETL pipelines** on **AWS EC2** using **Apache Airflow**, processing data from web sources via **web scraping** and **APIs** using Python. Increased data ingestion efficiency by 25%, reducing the processing time by 15 hours per week.
- Built **sentiment analysis models** using **NLP** techniques to analyze online extracted data, leveraging **transformer-based architectures** for improved accuracy, and scalable inference pipelines for real-time text classification

PROJECTS

Fault Tolerant Distributed Systems using RAFT | *C/C++* — August 2023 - December 2023
- Designed a key-value storage service on top of a **replicated file storage system** implementing **Raft**, a consensus algorithm based on the replicated state machine approach implementing a **load balancing key-sharding service** in **C++** using **Bash** and Python scripts and custom **RPCs**
- Added a transaction service that preserves the integrity of data retrieval and manipulation while maintaining atomicity and ordering across **asynchronous concurrent transactions**.

Nginx Style Reverse Proxy in Go | *Go, TCP/IP* — January 2024 - May 2024
- Developed a **TCP Proxy** that provides protection against network threats like **Remote Code Execution**/**Pre-auth attacks** by encrypting transmitted traffic using **AES-GCM** from a **PBKDF2** static key, main use case: **SSH**
- Features include handling of multiple incoming connections asynchronously using **goroutines** on server-side, fragmenting traffic for ideal throughput and relaying decrypted traffic to destination port without assumptions on network latency

MediSync - Scalable Health Portal with ASP.NET | *C#, .NET* — August 2020 - January 2021
- Engineered a **full-stack** Unified Health Portal using **C#**, React.js, optimizing patient data management, appointment scheduling, and health tracking while implementing **Redis** caching to reduce load times by 50%.
- Deployed on AWS, containerized with Docker, and automated CI/CD pipelines with **GitHub Actions**, reducing deployment time by 60%.

CO-CURRICULAR

Stony Brook University — August 2024 – May 2025
Research Assistant at **File Systems and Storage Lab** & Graduate Teaching Assistant — *Stony Brook, NY*
Publications: Hot Storage '24 (Paper), FAST '24 (Poster)
- Developing a software verification framework using Verus in Rust for checking liveness and safety properties of distributed systems based on a simplified **Ironfleet** written using **Dafny in C#** implementations of **MultiPaxos** and **Raft** protocols.
- Graded implementations of Paxos and Raft in **Go and Rust** as a part of TA duties ensuring correctness, fault tolerance, and adherence to specifications.