Prerak Bhandari

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EDUCATION

M.S. Computer Science - North Carolina State University, Raleigh August 2024 - May 2026
Coursework: Design and Analysis of Algorithms, Computer Networks, DevOps, OOD, Neural Networks. ***GPA: 4.00/4.00***

B.E. Computer Science - R. N. S. Institute of Technology, India July 2018 - August 2022
Coursework: Advanced Data Structures, AI/ML, Operating Systems, Embedded Systems, Cryptography. ***GPA: 9.02/10.00***

TECHNICAL SKILLS

Programming Languages: Go, Python, Java, C, C++, JavaScript, TypeScript, Ruby, SQL, HTML, CSS, PHP.
Frameworks: Spring Boot, React.js, Node.js, Django, Flask, FastAPI, Ruby on Rails, RSpec, Jest, Cypress
Databases: MongoDB, MySQL, PostgreSQL, Redis, Elasticsearch, DynamoDB.
Tools: AWS (EKS, S3, EC2, Lambda, ELB, SQS), Azure, Docker, Kubernetes, Ansible, Git, RabbitMQ, Jira, Jenkins

WORK EXPERIENCE

Graduate Student Developer January 2026 - Present
North Carolina State University *Raleigh, NC*

- Designing and engineering backend features for **Expertiza OSS (Ruby on Rails, TypeScript)** supporting scalable peer review workflows, rubric-based grading, and submission evaluation pipelines.
- Reduced **30%** code duplication by refactoring legacy grading models into a reusable hierarchy and developing submission response APIs to improve peer review workflow reliability and backend testability.

Software Engineer Intern May 2025 - August 2025
Tailon Labs *Remote, USA*

- Developed a full-stack Real Estate Management platform using **React.js, Node.js, TypeScript, and PostgreSQL**, enabling realtors to manage property listings at scale, and improving operational efficiency by **35%**.
- Increased API **throughput 3x and optimized p95 latency from 280ms to 85ms** by optimizing **RESTful** backend services using asynchronous I/O, connection pooling, and Redis-based caching under production load.

Software Engineer July 2022 - July 2024
Kaleyra *Bengaluru, India*

- Owned SMS service and boosted message delivery rates by **20%** and boosted campaign performance by refactoring Sender ID, template, and content APIs using **Go concurrency patterns**, separating message queues to reduce contention, and conducting load testing to optimize distributed SMS pipelines processing **millions of messages** daily.
- Eliminated billing errors and refined reconciliation accuracy by integrating Meta WhatsApp Tech Provider and Account Sharing features and automating per-customer billing based on WABA ID using the **Meta Graph API** and conversational analytics pipelines.
- Impacted **5M+ end users**, and drove customer migration from third-party URL shorteners by architecting and delivering an in-house URL Shortener with custom domain routing and channel-specific analytics (SMS, WhatsApp, Email), capturing total clicks, unique clicks, device, browser, and geolocation data, and leading a **3-engineer team** end-to-end.
- Migrated **150+ APIs** from PHP to **Go** across multiple services using **gRPC**, trimmed **latency by 97.5%** and scaled **throughput from 4000 to 15,000 requests per second** while moving the platform from monolith to **microservices**.

Software Engineer Intern April 2022 - July 2022
Kaleyra *Bengaluru, India*

- Scaled message reliability to **99.9%** and reduced delivery failures by **40%** by architecting a multi-channel failover framework across SMS, WhatsApp, RCS, Voice, and Email using **Amazon SQS**-driven asynchronous routing and dynamic channel-fallback logic.
- Increased revenue by **18%** and improved customer workflow efficiency by **25%** by designing and delivering the MS Excel Kaleyra Add-in, **integrating Excel with backend SMS APIs** to enable **in-spreadsheet campaign execution**.

PROJECTS

Sword URL Shortener | https://swrd.shop

- **Achieved 99.9% uptime and sustained 1000+ RPS throughput** by architecting a production-grade URL Shortener using **Java (Spring Boot), PostgreSQL, and RabbitMQ**-driven background processing, and automating testing and releases through a **CI/CD** pipeline with testing, **Dockerization**, and **AWS** EC2 deployments via **Ansible**.

Smart Inventory AI Bot | Source Code

- Achieved **15% user adoption** and reduced query-to-answer latency by **40%** by architecting a **cross-platform LLM-integrated mobile application** using **React Native, FastAPI, and Google Gemini AI**, and designing a structured query analysis and conversational response pipeline over CSV datasets containing **50,000+ records** for real-time inventory, customer, and pricing insights.