Pranchal Shah

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EDUCATION

MS in Computer Science | *Northeastern University* | *Boston, MA*   **Jan 2023 – May 2025**

Relevant Courses: Network Security, Kernel implementation, Computer Systems, OOP, Data Structures, Low level Software Security, Algorithms, Database Management

B.Arch in Architectural Engineering | *Sardar Patel University* | *India*   **Aug 2014 – Dec 2019**

TECHNICAL SKILLS

Languages	: Go, C/C++, Python, TypeScript, JavaScript, Java
Web Technologies	: Node.js, Django, Express, SpringBoot, React, RestAPI, GraphQL, gRPC, HTMX
Database & Storage	: PostgreSQL, MongoDB, Redis, Elasticsearch, Kafka, RabbitMQ
DevOps & Cloud	: AWS, GCP, Azure, Kubernetes, Docker, Terraform, Pulumi, Jenkins
Tools & Observability	: Git, Jenkins, Prometheus, Grafana, DataDog, Github Actions

PROFESSIONAL EXPERIENCE

FoxyAI   **May 2024 – Dec 2024**
Software Engineer Intern   *Boston, MA*

- Engineered a high-throughput image processing pipeline using Docker and Golang microservices. Reduced processing time by 73% (from 10:37 to 2:53 mins) with batching items on message queues while handling 12M+ daily images
- Improved ML model inference speed by 12% using NVIDIA MPS scheduling on Kubernetes A100 clusters
- Implemented cross-cloud caching layer(AWS/GCP) reducing processing costs by 35%, processing 90M+ images weekly
- Produced serverless E2E testing infrastructure leveraging AWS (S3, Lambda, API Gateway, DynamoDB) achieved 65% faster test execution (120s to $< 42s$) through multi-threaded test orchestration
- Developed AWS SQS and PostgreSQL-based audit trail system handling 3000 QPS with 0.8ms average latency

Sangath LLP   **Dec 2020 – Jul 2022**
Computational Engineer   *Ahmedabad, India*

- Produced extensible C# plugin framework reducing manufacturing simulation time by 33% across modelling workloads
- Pioneered computational modeling framework for manufacturing components, guiding a team of 4 to achieve 33% faster design iterations and $800K annual material savings through simulation optimizations
- Automated Python workflows across 20+ projects, transforming 40-hour processes to 15-min computations of estimates

Excellence Org   **Dec 2019 – Dec 2020**
Software Engineer (Backend)   *Mumbai, India*

- Optimized high-traffic PostgreSQL cluster achieving 85% lower latency through partitioning and query optimization
- Incorporated Redis for caching and invalidation patterns, achieving 40% reduction in database load
- Contributed to an internal platform featuring automated CI/CD pipelines, centralized logging, and custom Grafana dashboards, cutting deployment time from 2 hours to 15 minutes, providing real-time visibility into system metrics

Excellence Org   **Dec 2019 – Dec 2020**
Software Engineer Intern   *Mumbai, India*

- Optimized high-traffic PostgreSQL cluster achieving 85% lower latency through partitioning and query optimization
- Incorporated Redis for caching and invalidation patterns, achieving 40% reduction in database load

OPEN SOURCE CONTRIBUTIONS

Kubernetes (Issue 120633, PR 129574) | *Go, CRI-O, containerd, Docker, Ginkgo*   **Jan 2025 - Present**

- Enhanced Kubernetes node testing framework by implementing disk pressure simulation for container runtime eviction
- Developed test suite validating critical resource pressure scenarios, collaborating with Red Hat and Google maintainers

Projects

Operating Systems Components | *C, Assembly, Pthreads, Systems*   **Sept 2024 - Dec 2024**
- Created 16-bit CPU emulator supporting 20+ instructions with 64KB virtual memory and 8 registers management
- Engineered user-level threading library with custom scheduler, and 90ns context switching wite 1000+ parallel threads
- Programmed a Unix shell supporting 10+ pipes and process management with I/O redirection and 15+ bash features

Home lab Infrastructure | *Docker, Prometheus, Grafana, Nginx*   **Jan 2024 - Dec 2024**
- Initiated and deployed social forum serving 900+ weekly active users with 99.9% uptime on Raspberry Pi hardware
- Implemented Prometheus and Grafana observability stack monitoring 1000+ daily requests with 100ms p95 latency
- Deployed production-grade infrastructure with nginx, fail2ban, personal blog and git server handling 10k+ weekly visits