Hitarth Bharad

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Education

University of Arizona **Aug 2023 - May 2025**
MS Information Science - Machine Learning *Tucson, Arizona*

Dhirubhai Ambani Institute of Information and Communication Technology **Aug 2017 - May 2021**
Bachelors Engineering Information and Communication Technology *India*

Work Experience

FERO.AI **Jan 2026 – Present**
Senior Software Engineer *Dubai, UAE*

- Architected and deployed production AI agent systems using JavaScript/Typescript frameworks across cloud infrastructure, implementing scalable microservices that process real-time data streams with sub-100ms latency for industrial analytics applications.
- Rapidly prototyped and iterated on 15+ analytics features from concept to production, leveraging Python for backend logic and JavaScript for interactive dashboards, reducing time-to-market by 40% through agile experimentation and validation cycles

Waterlily **Sep 2025 – Jan 2026**
Senior Software Engineer *San Francisco, US*

- Architected and implemented core product modules with Node.js, PostgreSQL, and AWS Lambda, designing scalable RESTful APIs optimized for performance and handling high-traffic loads with efficient query patterns and connection management
- Built responsive React/TypeScript interfaces with real-time data synchronization and AI model integration, implementing efficient state management and optimized rendering for complex data workflows
- Developed internal testing framework for algorithm validation and regression testing, enabling rapid experimentation and quality assurance across production systems with automated performance benchmarking

FERO.AI **Sep 2021 – Jul 2024**
Software Engineer *Dubai, UAE*

- Architected high-performance distributed microservices using Java and Python (FastAPI) on Kubernetes/Azure, designing low-latency data pipelines with Kafka and Redis for real-time telemetry processing across 30+ integrated systems, reducing ETL latency by 35% and achieving 99% reliability
- Built real-time data serialization and transport protocols using WebSockets, REST APIs, and async processing, optimizing for performance with efficient message queuing, connection pooling, and cache strategies to achieve sub-100ms response times for compute-intensive workloads
- Implemented comprehensive observability infrastructure with Prometheus, Grafana, and distributed tracing for performance profiling and debugging production systems, maintaining 15-minute incident response SLA and reducing system downtime by 40% through automated monitoring
- Developed and optimized frontend systems using React, Next.js and TypeScript with focus on efficient rendering, state management, and API integration, implementing comprehensive testing with Jest & Cypress to ensure system reliability
- Mentored team of 5 engineers on software architecture, performance optimization, and engineering best practices for building scalable, maintainable systems in high-integrity environments, leading architecture reviews and technical decision-making across project lifecycle

Verse Innovation **Jun 2021 – Aug 2021**
Associate Software Engineer *Bangalore, India*

- Optimized backend API architecture using Java (Spring Boot), adding indexing and load balancing to handle concurrent requests, which reduced response times by 40% and increased throughput by 25% for a high-traffic video streaming platform serving 10M+ daily active users.
- Implemented user management and personalized data feed services by integrating AI-driven content recommendation models, improving user engagement by 20% and boosting retention rate by 15% across millions of daily sessions.

Projects

Aegion – Real-time Agent Orchestration Platform **aegion.app**

FastAPI, Next.js, WebSockets, Vector Search, PostgreSQL, AWS

- Architected low-latency real-time communication system using WebSockets and async Python, implementing efficient message serialization protocols and connection pooling to support concurrent multi-agent workflows with sub-50ms response times
- Built high-performance decision engine with optimized graph traversal algorithms and vector similarity search (PineCone), processing complex workflow trees with minimal computational overhead through efficient data structures and caching
- Implemented performance monitoring infrastructure with real-time metrics tracking, profiling CPU and memory usage, and optimizing async I/O patterns for scalable multi-user concurrent operations

Auto PO Processor **auto-po.app**

Next.js, TypeScript, FastAPI Python, ShadCN UI (Tailwind), Tesseract OCR, PyTest

- Built an intelligent document processing platform using OCR and NLP to extract structured data from complex PDFs with PII data encryption and secure processing pipelines. Integrated text parsing algorithms with 95% accuracy for multi-format document types through comprehensive testing with PyTest and automated quality assurance workflows

Technical Skills

Languages: C++, Rust, Python, TypeScript, JavaScript, Java, SQL, HTML/CSS
Functional Programming:: FP principles in Python/TypeScript (immutability, pure functions, map/reduce/filter)
Performance & Systems:: Multi-threading, memory profiling, cache optimization, low-latency systems
Real-time & Messaging:: WebSockets, Kafka, Redis, TCP protocols, async processing
Cloud & Infrastructure: AWS, Azure, Kubernetes, Docker, Jenkins
Frontend: React, Next.js, TypeScript, Tailwind
Database: PostgreSQL, MySQL, MongoDB, Redis, PineCone
ML/AI: Scikit-learn, TensorFlow, PyTorch, Hugging Face, XGBoost Testing & Quality: PyTest, Jest, Cypress, CI/CD pipelines