

Dhruv Trivedi

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EDUCATION

University of Houston

Master of Science in Computer Science (GPA: 3.8)

Houston, TX

Aug. 2024 – May 2026

Adani University

Bachelor of Engineering in Information and Communication Technology

Ahmedabad, India

Nov. 2020 – Jul. 2024

EXPERIENCE

Research Assistant – ML Systems & Cloud

Jan. 2026 – May 2026

University of Houston

Houston, TX

- Built a Digital Twin for metal additive manufacturing on AWS (EC2, S3) with auto-scaling infrastructure and real-time process replication.
- Architected a C++/Kafka telemetry pipeline across a 3-broker cluster ingesting high-frequency sensor streams with microsecond-level synchronization.
- Trained and deployed a Physics-Informed Neural Network in PyTorch using Docker, AWS Lambda, Terraform, and GitHub Actions for automated retraining and low-latency inference.

Research Assistant – Data Engineering & Backend

Jan. 2024 – Jun. 2024

Adani University

Ahmedabad, India

- Built Spark and Airflow ETL pipelines processing 50GB+ of research data into PostgreSQL, improving data availability and reproducibility.
- Developed FastAPI microservices over Kafka streams for real-time anomaly detection and Redis-backed caching, reducing dashboard latency from 8s to under 1s.
- Created React/D3.js analytics dashboards consuming GraphQL APIs, enabling researchers to visualize experiment results without direct database access.

Software Engineer Intern – Full Stack & Systems

Dec. 2020 – Jan. 2024

DICOT Innovations Private Limited

Ahmedabad, India

- Developed Spring Boot services and gRPC interfaces for industrial SCADA systems monitoring 200+ devices, improving reliability and interoperability.
- Optimized Oracle PL/SQL procedures and indexing strategies, reducing critical query latency by 40%.
- Built React/Next.js and ASP.NET Core applications, led Agile sprint delivery, and maintained automated test suites achieving 85%+ coverage.

PROJECTS

Lumina Exchange | Java, Spring Boot, Kafka, Redis, gRPC, Docker, Kubernetes

- Built a distributed trading engine in Java/Spring Boot processing 1,000+ matching events per second using Kafka, Redis, and gRPC.
- Containerized services with Docker and Kubernetes and implemented Prometheus/Grafana monitoring for latency and throughput observability.

DocuMind AI | Python, LangChain, RAG, MCP, Pinecone, AWS Lambda

- Built an MCP-powered RAG platform using LangChain and Pinecone, improving retrieval accuracy by 45% across 1,000+ documents.
- Deployed serverless inference services on AWS Lambda and API Gateway supporting 500+ requests per second.

Hydrate | Swift, SwiftUI, HealthKit, CoreData, Charts

- Developed a native iOS hydration-tracking application using SwiftUI, HealthKit, CoreData, and Charts.
- Implemented health-data synchronization, notification scheduling, automated testing, and App Store deployment workflows.

TECHNICAL SKILLS

Languages: Python, Java, C++, C#, JavaScript/TypeScript, Swift, SQL, Bash

Frontend: React, Next.js, React Native, D3.js, Tailwind CSS

Backend: Spring Boot, ASP.NET Core, FastAPI, Flask, Django, Node.js, GraphQL, gRPC, REST APIs

Data: PostgreSQL, Oracle, MongoDB, Redis, Apache Spark, Kafka, Airflow, Snowflake, dbt

Cloud & DevOps: AWS, Azure, Docker, Kubernetes, Terraform, Helm, GitHub Actions, Nginx

AI / ML: PyTorch, LangChain, RAG, MCP, Pinecone, FAISS, scikit-learn

Mobile: SwiftUI, UIKit, HealthKit, CoreData, Xcode, XCTest