

Tanmay Chaudhari

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Education

California State University Fullerton

Master of Science in *Computer Science*

Fullerton, USA

Aug 2024 – May 2026

- **Concentration:** Intelligent Application Systems Engineering
- **Coursework:** Advanced Algorithms, Web Back-End Engineering, Neural Networks, Database Systems, Operating Systems, Cloud Computing, Distributed Systems, Software Architecture

Nirma University

Bachelor of Technology in *Computer Science and Engineering*

Ahmedabad, India

Sep 2020 – May 2024

Projects

Agentic Hybrid RAG Pipeline

May 2026 – Present

- Architected **pure graph RAG (FastAPI, Neo4j)** with **LLMGraphTransformer**, eliminating vector stores entirely.
- Boosted retrieval precision **35%** via 3-strategy graph retrieval reranked with **HuggingFace cross-encoder**.
- Served **local LLM inference** via **Ollama** with **async UNWIND batch writes**, cutting ingest overhead by **80%**.

Mini Browser Isolation System (*Distributed Systems / Zero-Trust Infra*)

May 2025 – Mar 2026

- Architected **Docker-isolated** remote browser streaming with **Headless Chromium**, **WebRTC** and **WebSocket** fallback.
- Administered **browser lifecycle**, **CDP input forwarding** and **idle timeouts** with a **Go Gin/chromedp** orchestrator.
- Instrumented production readiness with **Kubernetes HPA** autoscaling, **coturn** relay support and **Playwright E2E** tests.

Full-Stack Video Streaming Application | Deployment

Aug 2025 – Present

- Accomplished **quality adaptive streaming** by building an **FFmpeg HLS** pipeline with **S3** and a **PostgreSQL** job queue.
- Secured **8+ video routes** with zero unauthorized access using **Clerk JWT**, **RBAC**, and **S3 presigned HLS**.
- Enabled **AI transcript search** and **4 live metrics** using **Groq Whisper**, **tsvector**, and **React heatmaps**.

Experience

Techy Birds

Web Development Intern

Gujarat, India

Jan 2024 – May 2024

- Engineered a **RESTful portfolio platform** by using **CodeIgniter MVC**, **React**, **MySQL**, **JavaScript** and **Bootstrap**.
- Accelerated speed by **30%** as measured by faster access, by optimizing **Redis caching**, **CDN**, **SQL queries** and **Async AJAX**.
- Shipped **secure cloud releases** by using **Docker**, **AWS EC2/RDS/S3**, **GitHub CI/CD**, **JWT** and **HTTPS**.

UniQual iTech

Android Development Intern

Gujarat, India

Jun 2023 – Jul 2023

- Developed an **Item List app** with **<200 ms CRUD**, by using **Java**, **Android Studio**, **RecyclerView** and **ViewModel**.
- Boosted **scrolling** by **40%** across **100+ items** by adding **RecyclerView diffing**, **lazy loading** and **multithreading**.
- Reduced **memory use** by **20%** with reliable **offline storage** by integrating **Room DB** and **SharedPreferences**.

Research Experience

A Comprehensive Survey on Parkinson's Disease Detection

Aug 2023 – Dec 2023

- Reviewed **2D/3D MRI deep learning** for **early PD detection**, covering preprocessing, model trends and research gaps.

Paper: A Comprehensive Survey on Parkinson's Disease Detection: Deep Learning, Medical Imaging, and Pre-Processing

Early Detection of Parkinson's Disease using 3D MRI Images

Feb 2023 – May 2023

- Built **3D CNN PD detection** on **PPMI MRI scans** with **HPC multi-GPU** training, achieving **92% accuracy**.

Paper: Enhancing Parkinson's Disease Diagnosis through Deep Learning-Based Classification of 3D MRI Images

Skills

Languages & Frameworks: C++, Java, TypeScript, Swift, Kotlin, Django

Databases & Cloud: MySQL, Linux, Grafana, STUN/TURN

AI, ML & Inference: Scikit-learn, OpenCV, MTCNN, TensorFlow Lite