

EDUCATION

**Indian Institute of Technology Madras**Bachelor of Technology in Civil Engineering; **CGPA: 7.92/10.0**

Chennai, India

Nov. 2021 – Jun. 2025

**Narayana Junior College**Class 12th Science HSC (PCM); **Score: 95.67%**

Mumbai, India

May. 2019 – Apr. 2021

**Holy Faith English School**Class 10th CBSE; **Score: 92.4%**

Mumbai, India

May. 2018 – Apr. 2019

EXPERIENCE

 FedEx

Data Engineer I

Bengaluru, India

Jul. 2025 – Present

US Surcharge Dashboard — SAS to Ab Initio Migration — US RQ Team

- Led design and development of a production-grade **ETL pipeline** processing **113M+** rows (25 months of data).
- Built a config-driven solution using **Ab Initio PDL**, cutting rate-update turnaround from **10 days to 4 hours**.
- Ensured data accuracy and consistency through large-scale validation of historical datasets.
- Developed an automated reporting workflow for backend data extraction and email distribution.

**Detect Technologies**

Artificial Intelligence Intern

Chennai, India

Jan. 2025 – May. 2025

- Integrated **Gen-AI** for **industrial safety** via end-to-end image generation and **real-time** video analysis pipelines.
- Designed a customizable image generator with **Hugging Face's FLUX** model with both GUI and non-GUI modes.
- Developed a **logging framework** to capture detailed prompt and configuration data for enhanced **traceability**.
- Deployed multi-threaded video analysis using Qwen **VLM**, **OpenCV**, & **Streamlit** for real-time safety monitoring.

**DiAx.AI**

Artificial Intelligence Intern

Chennai, India

May. 2024 – Jul. 2024

- Developed **Deep Learning** model to detect **diabetic foot** ulcers, now adopted by **Tamil Nadu** State Government.
- Achieved **95% accuracy** in **YOLO-based ulcer detection** models, with potential **impact over 10M** patients.
- Enhanced model robustness by **15%** through annotation and augmentation of **3,000+** images using **Roboflow**.
- Led **full software lifecycle**: preprocessing, training, and deployment, **optimizing model performance**.

**MachIntell**

SDE & Reliability Intern

Chennai, India

Feb. 2024 – May. 2024

- Developed solutions for **OEMs** to detect and resolve machine malfunctions, contributing to reliability engineering.
- Achieved **98.76% accuracy** in a hardware product (in progress) for sensor and actuator monitoring.
- Reduced diagnosis time by **40%** via **real-time** malfunction analysis using **MCF**, **Laplace**, and event plots.
- Integrated malfunction detection across database, frontend, backend, and hardware teams for system-wide reliability.

PROJECTS AND COMPETITIONS

Atlas – Autonomous Research Agent [\[live demo\]](#)

May 2026 – Jun. 2026

- Architected a **4-agent autonomous research pipeline** (Planner→Researcher→Critic→Synthesizer) performing live web research, self-critique loops, and streaming **fully-cited reports** via **Gemini & Groq** LLMs.
- Engineered **cross-model failover** with rate-limit pacing across free LLM tiers, sustaining **\$0 operational cost** while producing **8+ cited sources** and verified telemetry per research run.
- Implemented **source-grounded fact extraction** via **Jina Reader & Brave/DuckDuckGo**, structurally eliminating hallucinated citations by mapping every claim to a **verified URL** the agent read.

- Built **LLM-as-judge evaluation harness** (citation quality, accuracy, speed), **Pydantic** typed agent contracts, and **session history UI** with provider-lock for production-grade reliability.

RAG – Powered Multi-Doc Q&A Chatbot

Apr. 2024 – Aug. 2024

- Developed a **RAG-powered multi-document** Q&A chatbot integrating **retrieval and generation** for precision.
- Built a RAG system using **FAISS** for efficient indexing and **HuggingFace** embeddings for accurate retrieval.
- Integrated Cohere **LLM** with a retrieval pipeline, achieving **95%** accuracy on multi-doc answers.
- Applied **RCTS** for effective chunking, optimizing model performance and reducing latency by **35%**.

Fantasy IPL Prediction Hackathon – AI Club IITM

May. 2024 – Jun. 2024

- Competed in IPL fantasy points prediction hackathon using **TensorFlow** and **XGBoost** for accurate forecasting.
- Achieved **87% accuracy** & **0.87 AUC** on **22K+ profiles** using **TensorFlow**-based prediction models.
- Optimized **Random Forest** & **XGBoost** for captaincy prediction, reducing **WMAE** by **90%**.
- Led team to competitive finish with **0.00549 score gap** using imputation, feature selection, and stacking.

Lunar Lander – Reinforcement Learning

Feb. 2024 – Apr. 2024

- Engineered a **deep RL** agent in **OpenAI Gym** to autonomously land a spacecraft, optimizing for stable touchdown.
- Implemented a **DQN** with **experience replay** and **target networks**, stabilized by an **ϵ -greedy** exploration.
- Reached an average reward of **~ 250** , surpassing the **solved threshold (200)** within **800** training episodes.
- Tuned the **exploration–exploitation** balance and reward shaping to improve sample efficiency and convergence.

COURSEWORK, SKILLS AND CERTIFICATIONS

Relevant Courses: Introduction to Scientific Computing, Machine Learning in Civil Engineering, Probability and Statistics, Computational Thinking, Principles of Economics

Certifications: Data Analytics Specialization by Google, Machine Learning Specialization by Stanford University, Algorithms Specialization by Stanford University, Deep Learning Specialization by Stanford University

Programming Languages: Python, SQL, C++, HTML, CSS, MATLAB

AI/ML: LLMs, RAG, Agentic & Multi-Agent Systems, Prompt Engineering, Vector Search (FAISS), Computer Vision, Deep Learning, NLP, Reinforcement Learning

Libraries: TensorFlow, Keras, PyTorch, Scikit-learn, OpenCV, Matplotlib, Seaborn, NLTK, OpenAI Gym, Pydantic, Streamlit, HuggingFace Transformers

Utilities: Jupyter Notebook, LaTeX, GitHub, Roboflow, Google Colab, Tableau, Kaggle, Ab Initio, Streamlit Cloud

POSITION OF RESPONSIBILITY

Shaastra Technical Festival, IIT Madras

Chennai, India

Strategist, Publicity and Hospitality

June 2023 – May 2024

- Managed accommodation for **3000+ participants**, with **targeted publicity campaigns** within the Chennai city.
- Conducted **outreach programs**, boosting participation by **30%** with a **₹50L** budget & **cracked vendor deals**.
- Led a **60-member team**, optimizing the resources and managing **crises** during accommodation coordination.

SPORTS AND EXTRA-CURRICULAR ACTIVITIES

Institute & Hostel Badminton Teams, NSO Badminton

IIT Madras

Athlete

July 2022 – Jun 2025

- Underwent **rigorous training** daily in badminton for a year, advancing from **NSO to the Institute team**.
- Won the **Badminton Gold medal for Ganga Hostel** for the first time in inter-hostel championship.