

Suyash Maniyar

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EDUCATION

University of Massachusetts Amherst

Master of Science in Computer Science

Indian Institute of Technology, Jodhpur

Bachelor of Technology

Coursework : Calculus, Statistics, Linear Algebra, Data Structures and Algorithms, Machine Learning, Deep Learning, DLOps, Mobile and Pervasive Computing, Advanced NLP, Software Engineering, Research Study

Amherst, MA, USA

Expected May 2027

Jodhpur, India

Aug 2019 – May 2023

SELECTED PUBLICATIONS

- AI-Generated Lecture Slides for Improving Slide Element Detection and Retrieval, **ICDAR 2025**.[\(Paper Link\)](#)

EXPERIENCE

Graduate Student Researcher

BioNLP lab @ UMass Amherst - Guide : Prof. Hong Yu

August 2025 – Present

Amherst, USA

- Designed an **ontology-driven self-play framework** where dual LLM agents (Q&A) co-evolve to fill biomedical knowledge gaps using PubMed–MeSH grounding. **Achieved 12 % accuracy boost** over Supervised Fine Tuning.
- Implementing adaptive difficulty control and evidence-aligned reinforcement learning to enhance factuality.

Advanced Data Science Associate

ZS Associates

November 2024 – July 2025

Pune, India

- Developed and deployed a **Switch Prediction Model** to predict patients switching from ongoing drug treatments, leveraging real-world data using an ensemble of ML (Bayesian classifier, XGBoost), DL (ANN, TabNet) models.
- Achieved 70% precision at 60% recall; created visualizations, communicated model and **SHAP analysis** results to the client team, and aided in **optimizing marketing** efforts with projected cost savings of upto **500K dollars**.
- Built patient cohorts using business rules leveraging SQL and conducted patient archotyping via clustering.
- Engineered a dashboard to visualize model results and automate retraining, inferencing enabling one-click **MLOps**.

AI/ML Engineer

Decimal Point Analytics

July 2023 – October 2024

Mumbai, India

- Designed a Predictive Maintenance pipeline to predict defects in industrial machinery using **time series** models.
- Mentored two summer interns on a **Knowledge Distillation and Few-shot Object Detection project**.
- Assembled a **Retrieval-Augmented Generation (RAG)** system for Q&A, given PDFs and Excel sheets; integrated knowledge graphs, leading to an accuracy boost of **9%**. Used multi-threading to reduce latency by 75%.
- Developed an **agent-based hybrid web scraper** by **finetuning Llama2 (7B/13B) with LoRA** for text-based extraction and leveraging GPT-4 for code generation pipeline, reducing downtime from 12 hours to 3 minutes.
- Prototyped several Gen-AI-based products leveraging closed and open source LLMs, FastAPI, Streamlit, Django.

AI Research Intern

Rapid AI X IIT Jodhpur

Co-op Program : Sept 2022 – May 2023

Remote, India

- Engineered a table detection pipeline by finetuning **CascadeTabNet and DIT** models, achieving 76% mAP.
- Applied novel augmentation techniques, improving mAP score by **7%** on a gold-standard private dataset.

AI/ML Intern

Decimal Point Analytics

May 2022 – July 2022

Remote, India

- Established an end-to-end pipeline for **accident detection and damage segmentation** in CCTV footage.
- Conducted experimentation on diverse architectures such as Vision Transformer, Convolutional LSTM, YOLO models, and computer vision algorithms like DeepSORT, Opticalflow. Achieved an **F1 score of 87%**.

PROJECTS

UniTrade – Campus Marketplace Web Application

Sept 2025 : Ongoing

- Developing a campus-only marketplace, with bidding option, using React.js, Node.js, Express and MongoDB.
- Implementing **Firebase Auth, Firestore** for OTP-based login, real-time in-app chat, and push notifications.

SynSlideGen : [Project Link](#)

Aug 2024 - Feb 2025

- Led a research project to develop an **LLM-driven** pipeline to **generate synthetic presentation slides**.
- Trained models for slide layout detection, image retrieval tasks using synthetic data, delivering **SOTA** results.

Data-Driven Haptic Modelling : [Poster Link](#)

Aug 2022 - Jan 2023

- Devised a novel methodology for force modelling of inhomogeneous objects in haptics. Obtained 95% accuracy.
- Presented “Barycentric Interpolation for Force Modelling on Visco-Elastic Inhomogeneous Objects”, **won 1st place** at Indian National Academy of Engineering and Science and Engineering Research Board Youth Conclave 2022.

TECHNICAL SKILLS

Languages: Python, SQL, C/C++, R, Java, JavaScript, HTML/CSS, MATLAB, LaTeX

Tools: Linux, Git, Docker, AWS, PyTorch, TensorFlow, Spark, Mapreduce - Hadoop, Pandas, NumPy, MLflow, CUDA