

Suyash Maniyar

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EDUCATION

University of Massachusetts Amherst

Master of Science in Computer Science

Amherst, MA, USA

Expected May 2027

Indian Institute of Technology, Jodhpur

Bachelor of Technology

Jodhpur, India

Aug 2019 – May 2023

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

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 archetyping 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

Raapid 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