

GAUTHAM MANURU PRABHU

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Work Experience

Cisco Systems Inc. | *SE Intern* → *SE1* → *SE2* **Jan 2024 – Present**
Bengaluru, India

AI Acceleration Team, Supply Chain Operations

- Double-promoted over **18 months** (intern → SE1 in 6 months; SE1 → SE2 in 12 months) broadly worked on projects to integrate AI into Cisco's supply chain.
- Built **agentic AI systems** (service-request resolution, knowledge-base indexing, case follow up agent and proactive alerts agent) that handled **20% of incoming cases autonomously**, cut case volume by **35%**, reduced **MTTR by 40%**, and saved **~5,000 engineer-hours per quarter** in supply chain operations.
- Designed **agentic AI solutions** for failure analysis and predictive maintenance, improving upstream defect detection and reducing repeat failure rates across global manufacturing sites under the **Quality Transformation Program**.
- Built AI systems to identify coverage gaps in **Paladin edge connectors** on the factory floor across **10+ production lines**; integrated **SplunkAI** observability into legacy systems for real-time alerting.
- Won **2nd Runner-Up** in Cisco's Intern Case Study Competition among **100+ entries** for "Supplier Name Standardization," improving data consistency across **50,000+ supplier records**.

Skills: Python, FastAPI, Agentic AI, LLMs, RAG, LangChain, LangGraph, LangSmith, SplunkAI, Docker, Kubernetes, PostgreSQL, Snowflake, OpenShift, ArgoCD

Machine Intelligence and Complex Systems (MiCoSys) Lab, San Jose State University

Research Associate | *Advisor: Dr. Saptarishi Sengupta*

Remote

- Conducting research on **efficient training of Temporal Graph Neural Networks (TGNNs)** under the GraphML paradigm, targeting scalable learning over dynamic, time-evolving graph structures.
- Investigating memory-efficient and computationally optimized TGNN architectures to reduce training time and resource consumption on large-scale temporal graphs with **millions of edges and dynamic node features**.

Skills: PyTorch Geometric, DGL, Graph Neural Networks, Temporal Graphs, GraphML, Python, CUDA, Distributed Training

Medical Informatics Lab, IIT Kharagpur

Jun 2023 – Aug 2023

Deep Learning Research Intern | *Advisors: Dr. Subhamoy Mandal, Ms. Pragya Gupta*

Remote

- Proposed an **ensemble-based feature fusion** approach for anomaly detection in **optical coherence tomography (OCT)** scans, integrating advanced pre-processing, augmentation pipelines, and hyperparameter optimization via color-space feature extraction.
- Achieved **competitive accuracy** on multi-class OCT classification benchmarks; techniques contributed to a dataset of **3,000+ annotated retinal scans**.

Skills: PyTorch, TensorFlow, Computer Vision, Image Segmentation, OpenCV, Ensemble Learning

Education

Manipal Institute of Technology

2020 – 2024

B.Tech in Computer Science & Engineering | *Minor: Big Data Analytics*

8.91/10 CGPA (Top 15%)

Research Experience

Cybersecurity and Quantum Computing Research Group, MIT Manipal

Feb 2022 – Nov 2023

Undergraduate Researcher | *Mentor: Dr. Vivekananda Bhat*

- Developed **Quantum ML models** for cardiovascular disease detection on ECG image datasets; implemented QSVC, Pegasos QSVC, and Quantum CNNs achieving up to **97% accuracy**, outperforming classical baselines by **10–14%** on held-out test sets.
- Research funded by a **MeitY, Government of India** and **Amazon AWS** project grant; recognized as **Grand Finalist (Top 16 of 1,600+ teams, 25+ countries)** at the Global Quantum Ecosystems Technology Council of India Hackathon 2022.

Biometrics and Software Engineering Group, MIT Manipal

Jul 2022 – Oct 2023

Undergraduate Research Assistant | *Mentors: Dr. Srikanth Prabhu, Mr. Govardhan Hegde*

- Designed **deep learning pipelines** for retinal vessel segmentation combining CLAHE, Gaussian blur, and edge detection on **3,000+ fundus images**; integrated **cryptographic schemes** (Diffie-Hellman, AES-256) for secure biomedical imaging at Kasturba Medical College.

- Published in **Springer Lecture Notes in Computer Science**; presented at the Applications and Techniques in Information Security (ATIS) conference.

MIT Manipal

Sep 2022 – Jul 2023

Undergraduate Researcher | Mentor: Dr. Nisha P. Shetty

- Investigated **vaccine misinformation spread** on social media using **BERT** and **XLNet** for NLP-based classification across a corpus of **10,000+ posts**; applied graph-based propagation modeling achieving **>90% classification F1** on benchmark datasets.
- Published in **Procedia Computer Science**; presented at the **International Conference for Machine Learning and Data Engineering (iCMLDE 2024)**.

Publications

- **QuCardio**: Application of Quantum ML for Detection of Cardiovascular Diseases – *IEEE Access*, 2023
- **VIKAS**: A Multimodal Framework to Aid in Effective Disaster Management – *Springer ATIS*, 2022
- **EyeEncrypt**: A Cyber-Secured Framework for Retinal Image Segmentation – *Springer ATIS*, 2022
- Addressing Vaccine Misinformation on Social Media using Transformers – *Procedia Computer Science*, 2024
- Systematic Review of Deep Learning Approaches for Vessel Segmentation in Retinal Fundus Images – *IOP J. Phys.: Conf. Ser.*, 2023
- SatelTensor: Satellite Data Exploration via Tensor Decomposition – *TCML Workshop, IISc*, 2023

Technical Skills

Languages: Python, C++, C, Java, JavaScript, TypeScript

AI / ML: TensorFlow, PyTorch, PyTorch Geometric, DGL, Scikit-learn, Keras, Qiskit, NLP, Computer Vision, LLMs, Agentic AI, GraphML

Backend & APIs: FastAPI, Flask, Django, REST APIs, gRPC, Microservices Architecture

Big Data & Distributed Systems: Hadoop, Spark, Redis, Celery, Cassandra, MongoDB

Databases: PostgreSQL, Snowflake, MySQL

DevOps & Cloud: Docker, Kubernetes, Jenkins, GitHub Actions, Git, Bash, Pytest, AWS, Azure

Honours and Awards

- **Grand Finalist** – Quantum Science & Technology Hackathon 2022 (**Top 16 / 1,600+ teams, 25+ countries**)
- **Smart India Hackathon Finalist (Grand Finale, NDRF track)** – Led a team of **6** to develop a multimodal disaster response system integrating NLP and CV, competing against **1,000+ teams nationally**.
- **2nd Runner-Up** – Cisco Intern Case Study Competition for “Supplier Name Standardization” among **100+ entries**.
- **Selected Presentations** – ACM Winter School on Optimization for ML & OR (IIT Goa); Summer School on Dynamic Resource Allocation (IISc Bengaluru); Digital Health Symposium (IIT Kharagpur).
- **NTSE State Scholar** – Rank **21 / 151,000+ participants**.
- **Thayil Lonappan George Memorial Endowment Award** – **3rd rank**, All India Senior School Certificate Examination 2020.

Positions of Responsibility

Co-founder & Technical Head – Project Kalpana

2022 – 2023

Led development of a radio astronomy system with a team of **8**; secured a **\$13,000 grant** for R&D.

General Secretary & Treasurer – ACM Student Chapter, Manipal

2022 – 2023

Organized **12+ events** including workshops and hackathons; grew participation by **35%**.

Technical Head – Astronomy Club of Manipal

2021 – 2023

Led **5+ projects** and conducted astronomy sessions and stargazing events for **200+ students**.

Certifications

- Optimization for ML and Operations Research – **ACM Winter School, IIT Goa**
- Dynamic Resource Allocation Problem – **Center for Networked Intelligence, IISc Bengaluru**