

Dhawal Modi

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Education

University of California - Merced

Aug 2023 - May 2025

Master of Science in Electrical Engineering & Computer Science (GPA: 3.85 / 4.00)

- **Relevant Coursework:** Deep Learning, Reinforcement Learning, Computer Architecture, Parallel Computing

Rajiv Gandhi Proudhyogiki Vishwavidyalaya

Jul 2016 - Jun 2020

Bachelor of Engineering in Electronics & Communications Engineering (GPA: 3.27 / 4.00)

- **Relevant Coursework:** Computer System Organization, Operating Systems

Technical Skills

Languages: Python, Java, C++, CUDA, MATLAB

Machine Learning Frameworks: PyTorch, TensorFlow, Scikit

Frameworks: Django, Flask, Spring, Spring Boot

Databases: Oracle SQL, PostgreSQL, IBM Db2

Other Technologies: ROS, XML, Shell Scripting, \LaTeX

Experience

University of California, Merced

Jan 2024 - Present

Deep Learning Engineer / Graduate Student Researcher - MoCA Lab

- Developed a mobile robotic platform using the AgileX SCOUT UGV to assist forest crews in reducing wood waste and preventing wildfires.
- Finetuned ENet and SegFormer Semantic Segmentation models for Robot path traversability application on custom dataset with an mIOU of **0.729** and **0.68** respectively (**improvement of 23% and 15% over baseline models**).
- Trained and deployed ENet CNN model on Nvidia Orin AGX for real-time tasks, achieving **25ms inference time per frame**.

Lawrence Livermore National Laboratory

Jul 2024 - Aug 2024

Data Science Challenge Intern

- Led a team of 3 undergraduate students to implement and design Machine Learning and Deep Learning models for Heartbeat classification and Transmembrane Potential curve reconstruction.
- Implemented Customized 1D SqueezeNet CNN model to predict Myocardium Activation Times and Transmembrane Potential Curve reconstruction with **97.46% accuracy** on 1600 samples of unseen data.

Tata Consultancy Services Limited

Nov 2020 - Jul 2023

Software Developer

- Implemented and streamlined validation routines for Outward Direct Debits and Credit Transfer payment channels, developing interfaces as per FPS and HKICL specifications leading to high-efficiency processing, handling up to **100,000 transactions per minute**.
- Designed Spring REST API Client integration with BPAY API, enhancing real-time bill payment processing by **35%**.
- Led microservices architecture development for rapid API prototyping, ensuring successful deployment to testing and production environments.
- Optimized Oracle SQL database queries, reducing Direct Debit and Credit Transfer Payment file upload times by **15%** and boosting overall application performance.

Projects

LLM Prompt Recovery | Python, PyTorch, Accelerate, Transformers

- Developed and Finetuned Google Gemma 7b and Mistral Mixtral 7b LLMs to predict a "Rewrite Prompt" given the "Original Prompt" and the "Transformed Text" pairs.
- Achieved top 45% ranking (986/2186) in competition; best submission using Phi-2 model scored 0.6188, outperforming fine-tuned Mixtral 8x7B (0.6056) and Gemma 7B (0.5981) models.

Binary Classification with a Bank Churn Dataset | Python, Scikit, Seaborn, Matplotlib, Jupyter Notebooks

- Built a Binary Classifier to predict churn using XGBoost achieving an ROC-AUC percentage score of 88.5%.
- Created data visualizations for the training dataset using Python and Seaborn library revealing patterns in the dataset.