ARYAN BHUSARI

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EDUCATION

University of Southern California — Los Angeles, CA
Master of Science in Computer Science — August 2024-May 2026

- GPA: 3.5 | Selected Coursework: Analysis of Algorithms, Deep Learning, ML for Data Science, Applied NLP, Advanced Computer Vision, Information Retrieval and Web Search Engines

Maharashtra Institute of Technology — Pune, India
Bachelor of Technology in Computer Science and Engineering — October 2020-May 2024

- CGPA: 9.36 on a scale of 10

SKILLS

- Programming/Scripting Languages: Python, SQL (Proficient); C/C++, Java (Familiar)
- Frameworks and tools: PyTorch, Scikit-learn, Linux, AWS, OpenCV, Matplotlib, NumPy, Pandas, Git, PySprak, Seaborn, Keras, Microsoft Suite, Jupyter, MongoDB (No-SQL), Fine-tuning LLMs, Hugging Face, Unsloth.ai, llama.cpp, Bash, TensorFlow
- Soft Skills: Verbal and written communication skills, Problem-solving, Critical Thinking

EXPERIENCE

Arm Inc. — Austin, TX
Intern, Machine Learning Software Engineer — May 2025-August 2025

- Benchmarked and analyzed performance of distributed LLM inference workloads (up to 405B parameters) on Arm-based cloud infrastructure (e.g., AWS Graviton) within the Cloud Infrastructure division
- Achieved 100% improvement in inference pipeline performance with llama.cpp in resource-constrained CPU environments through bottleneck identification and CPU efficiency enhancements

Centre for Development of Advanced Computing — Pune, India
Deep Learning Intern — July 2023-December 2023

- Developed components of an OCR pipeline for Sanskrit manuscripts by converting handwritten content into digital form; achieved 97% accuracy for character recognition
- Implemented word segmentation, letter segmentation and character recognition by applying NLP and CV concepts; employed technologies such as Detectron 2, Label Studio and Python

Indian Institute of Science Education and Research — Pune, India
Data Science Intern — March 2023-November 2023

- Collaborated on a research project using satellite imagery of Indian subcontinent from Aqua, Terra, and INSAT-3D to deliver high-resolution Land Surface Temperature (LST) data with less than 5% cloud cover
- Coordinated subsetting, re-gridding, collocation, and interpolation on 400 GB of geospatial data to analyze land-atmosphere interactions, urban heat islands, and environmental monitoring using libraries such as SciPy, Xarray etc.

ACADEMIC PROJECTS

Hate Speech Unlearning for LLMs

- Reimplemented and enhanced the Selective Knowledge Unlearning (SKU) framework on LLaMA models to reduce hate speech generation; integrated contrastive learning to improve harmful prompt disentanglement and achieved a 46% drop in harmful response rate (62.6% → 33.9%)
- Designed and fine-tuned a novel Relearning stage using safe QA data to restore control task performance post-unlearning, preserving utility on benign prompts without reintroducing harmful behaviors

PriceNet: Stock Price Prediction with Large Language Models

- Fine-tuned open-source models (e.g., Llama-3.1-8B-Instruct) on binned stock price data, converting numeric shifts into labels and integrating historical financial news, increasing accuracy by 5-10% over ARMA-GARCH
- Developed an explainable financial time series forecasting model leveraging data distillation with LLMs (Llama, Gemini), attaining 50% binary accuracy, 24% bin accuracy, and a ROUGE-2 score of 0.546 for prediction reasoning

Federated Learning for Healthcare Applications

- Built a Federated Learning system with Firebase cloud, enabling secure training of a unified global model across multiple hospitals and 2 diseases, ensuring protection of sensitive health records
- Addressed regression and classification problems; obtained accuracy comparable to non-federated models and recorded test loss reduction of 60% for a specific problem

PUBLICATIONS

- Bhusari, A. and Kulkarni, A.J., 2025. Drone Path-Planning Leveraging Cohort Intelligence Algorithm. In *Optimization Techniques for Sustainable Environment Under Uncertainty* (pp. 135-147). Singapore: Springer Nature Singapore.