Prem Gorde

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Experience

Founding Software Engineer October 2024 – January 2025
Tetsuwan Scientific *San Francisco, CA*

- Spearheading development of an AI-integrated platform for wet lab robotic devices, enabling automated workflows and enhancing efficiency in bio-chemistry research.
- Built and maintained full-stack UI platform equipped with Langchain to deliver solutions. Integrated GCP and Azure registrations for new users, along with psql-database management.
- Integrated multi-agent autonomous AI system and voice transcription/summarization features, transforming AI-generated outputs into actionable data structures for research workflows.
- Collaborated with Lab-automation and mechanical engineers and scientists to design intuitive interfaces, effectively communicating results and improving usability, resulting in 250% speedup in experimentation time

Graduate Student Researcher - ML/NLP Engineer March 2024 – June 2024
UC Davis Health *Sacramento, CA*

- Developed a RAG LLM architecture for clinical trials document analysis, optimizing knowledge retrieval by 30% and generating inputs for CT.gov reports. Github: Clinical-Trial-RAG.
- Leveraged fine-tuned LLMs (GPT-4, Claude Sonnet 3, Llama3) for improving document understanding.
- Customized AI pipelines for UC Davis Health to streamline data processing and increase reliability of automated clinical trial data analysis.

Graduate Student Researcher - Data Scientist March 2023 – June 2024
UC Davis Health *Davis, CA*

- Designed and owned a full-stack end-to-end ETL pipeline for CT angiogram data: extracted DICOM files, transformed sequences, and packaged inputs for scalable ML workloads for 8k+ sequential CT scans.
- Implemented predictive video models (E3D-LSTM, ConvLSTM, SimVP) via **OpenSTL**, improving aneurysm and internal bleed detection by 15±5%.
- Led A/B testing and hyperparameter tuning across custom OpenSTL architectures to optimize temporal prediction performance
- Synthesized and curated high-quality medical datasets for training, significantly improving the robustness of predictive models on sparse, noisy sequences.
- Collaborated with radiologists and data scientists to align model outputs with medical interpretations.

Data Science Research Intern July 2023 – September 2023
Lawrence Livermore National Laboratory *Livermore, CA*

- Performed statistical analysis on 443 CT scans using SSIM, variance, and pixel-wise metrics to model panel degradation over 4 years, published in Technical Report.
- Identified stable "bad pixel" patterns and spatial burn-in effects; validated as predictive features for panel health monitoring.
- Analyzed scan frequency (duty cycle) trends, revealing strong correlation with dark current degradation in exposed regions.
- Collaborated with physicists and imaging scientists to deliver actionable insights, contributing to LLNL's structural health monitoring systems.

Projects

Code Summarization/reasoning with CodeLLama-13b with Fine Tuning/In-Context Learning

- Built a fine-tuning pipeline using CodeLlama:13b-instruct for code summarization
- Developed an In-Context, Chain-of-Thought pipeline for generating code summaries from CodeSearchNet
- Achieved a BLEU-4 score of 21, comparable to State-of-the-Art research

Machine Learning for Non-Majors (ECS 111) – Course Development & Instruction

- Designed and taught an introductory ML course for upper-level undergraduates, covering data science workflows, statistical analysis, and model implementation using NumPy, Pandas, Scikit-learn, and Seaborn.
- Developed four structured assignments to reinforce ML concepts and facilitated group projects, guiding students in data processing, model selection, and result interpretation.
- Helped students implement ML models from scratch, leading to two projects being submitted to academic journals and an average course grade of 87%.

Education

University of California - Davis Davis, CA
***Masters** of Science in **Computer Science**, Specialize in Data Science/Statistics*

University of California - Irvine Irvine, CA
***Bachelors** of Science in **Computer Science**, Specialize in Intelligent Systems; Minor in Management*

Technical Skills

Languages: Python, R, C/C++, Java, SQL (MySQL/NoSQL), JavaScript/TypeScript, HTML/CSS
Frameworks: React, Node.JS, Next.JS, Flask, Django, FastAPI, SpringBoot, TensorFlow, PyTorch, Scikit-Learn
Developer Tools: Git, Docker, Kubernetes, Google Cloud Platform (GCP), AWS, Azure Entra Suite, VS-Code, CursorAI
Libraries: pandas, NumPy, SciPy, Matplotlib, Seaborn, Plotly, HF-Transformers, LangChain, LlamaIndex
DS/ML alogrithms: RAG, Agentic AI, CNNs, Transformers, Neural Networks, Constraint Satisfaction, Core ML methodologies