

Prem Gorde

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EXPERIENCE

Founding Software Engineer

October 2024 – Present

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 using Next.js, React, PostgreSQL, and 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 end-users (scientists) to design intuitive interfaces, ensuring seamless integration with lab equipment and improving usability, resulting in 250% speedup in experimentation time

Graduate Student Researcher

March 2023 – June 2024

UC Davis Health

Davis & Sacramento, CA

- **Machine Learning Engineer (March 2024 – June 2024)**
 - * Developed a RAG LLM architecture for clinical trials document analysis, improving efficiency by 30% and generating inputs for CT.gov reports. Github: [Clinical-Trial-RAG](#).
 - * Fine-tuned state-of-the-art LLMs (GPT-4, Claude Sonnet 3, Llama3, Mistral 8x7B, Clinical-T5-large) on medical datasets, enabling domain-specific insights.
 - * Customized AI pipelines for UC Davis Health to streamline data processing and increase reliability of automated clinical trial data analysis.
- **Data Scientist (March 2023 – September 2024)**
 - * Engineered video prediction models (LSTMs, CNNs) on CT-Scan Angiogram data, improving detection of internal bleeding and aneurysms by $15\pm 5\%$.
 - * Spearheaded AI-driven medical data synthesis, creating high-quality datasets for anomaly detection in sequential CT scans.
 - * Implemented cutting-edge video prediction frameworks ([OpenSTL](#)) to model sequential behavior in medical imaging workflows.

Data Science Research Intern

July 2023 – September 2023

Lawrence Livermore National Laboratory

Livermore, CA

- Utilized advanced data science techniques such as contrast boosting and pixel density analysis to analyze sequential CT scan data for signs of system health deterioration, achieving an 80% correlation with existing features outlined in the [Published Technical Report](#)
- Feature-engineered techniques to find features from CT scan analyses, showing $80\pm 5\%$ correlation with existing features.
- Collaborated with cross-functional teams to develop a comprehensive degradation over duty cycle analysis tool, aiding in the early detection of system health issues and reducing downtime by 15%.

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

LLM responses as StackExchange answers

- Structured and led a research project to evaluate Llama2-7b, Mistral-7b, and Falcon-7b on their ability to answer SWE based questions from StackExchange.com
- Conducted comparative analysis to measure model performance, benchmarking performance analytics against human 'golden' responses. Achieved high Cosine Similarity (0.5), BERTScore (0.42), and BLEURT score (25)

EDUCATION

University of California - Davis

Davis, CA

Masters of Science in Computer Science, Specialize in Medical Data Science/Computer Vision

University of California - Irvine

Irvine, CA

Bachelors of Science in Computer Science, Specialize in Intelligent Systems; Minor in Management

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL (Postgres), JavaScript, TypeScript, HTML/CSS, R, Bash/Shell Scripting PowerShell

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 algorithms: RAG, Agentic AI, CNNs, Transformers, Neural Networks, Constraint Satisfaction

Project Management Tools: JIRA, Trello, Asana