Pranav Yadav

Education

University of California, Merced — Merced, CA
Computer Science and Engineering — *Aug 2023 – Dec 2026*

- Key Courses: DSA, Deep Learning, Natural Language Processing, Full-Stack Web Dev, Numerical Analysis
- Dean's Honor List (Fall 2023 - Spring 2025), Chancellor's Honor List (2023-25)

Experience

Undergraduate Research Assistant — Evolab — Feb 2025 – Present
UC Merced — *Merced, CA*

- Contributing towards building large language model support for quadruped robots by enabling a response to commands in natural language and using contextual information to make decisions (Python and ROS2)
- Experience with running participants and handling neuroimaging technology for experiments

Projects

AI Resume Analysis | *Python, Node.Js, React* — June 2025
ai-resume-a3733.web.app/

- Worked with UCM ML club on Web app with React and Tailwind CSS frontend and a backend done in JavaScript; Database hosted in Firebase
- Analyzes user's resume by calling to ChatGPT API with detailed prompt and guidelines for feedback
- Gives helpful feedback and calls JSearch API using keywords to find jobs near user with high relevance

CatTracker | *Next.js, React, TypeScript, Tailwind CSS, Google Gemini API, Google Maps API* — Oct 2025
github.com/UCM-Transit-Assist/UCM-Trip-Assistant

- Built an AI-powered transit planning web app for UC Merced students using Google Gemini 2.5 Flash to process natural language queries and recommend CatTracks bus routes
- Integrated Google Maps Geocoding, Directions, and Distance Matrix APIs to calculate accurate bus paths and walking directions to bus stops
- Supported 9 bus routes with real-time schedule parsing and time-based trip planning given a user-specified arrival time

Publications

HG-RAG: Hierarchy-Guided RAG for Structured Knowledge Graphs | *Python, NetworkX* — April 2026
github.com/Pranubot/HG-RAG

- Designed and implemented a RAG framework that performs graph-traversal over hierarchical knowledge graphs to deliver structured context to LLMs.
- Evaluated across three world scales (18–800 nodes) and four query types against a baseline using Mistral 7B.
- HG-RAG achieved 1.86 factual accuracy vs. 0.02 baseline on large-scale graphs and demonstrated exceptional scaling on multi-hop reasoning (4.10 vs. 1.66 LLM judge score at large scale).

Certifications

Advanced Learning Algorithms | *DeepLearning.AI, Stanford University* — May 2024

- A set of 3 courses taught by Andrew Ng: Supervised Machine Learning, Regression and Classification — Unsupervised Learning, Recommenders, Reinforcement Learning — Machine Learning Specialization

Skills + Additional

Languages: Python, C/C++, JavaScript, HTML/CSS, SQL
Frameworks: React, Node.js, Material-UI, FastAPI, REST API
ML: PyTorch, TensorFlow, Scikit-learn, Hugging Face, RAG
Libraries: Pandas, NumPy, Matplotlib, YOLO
Vice President and SIG AI Lead of the Association of Computer Machinery Club at UC Merced