Yousuf Golding

5716 Chelton Drive, Oakland CA, 94611

+16507137793 | ygolding@ucsc.edu | https://yoolee.xyz/ | yooleee | yousuf-golding

Personal Profile

I'm a recent graduate with a masters in Natural Language Processing at UC Santa Cruz, focusing on conversational AI, educational technology, and multimodal machine learning systems. I am searching for Machine Learning Research and Engineering positions.

Education

University of California, Santa Cruz — *San Jose, California*

MS in Natural Language Processing (NLP) — *Sept 2024 - Dec 2025*

- **Courses:** Deep Learning for NLP, Data Science and Machine Learning Fundamentals, Advanced Machine Learning for NLP, Conversational Agents, Projects in AI, Natural Language Processing (1, 2, 3)

University of California, Santa Cruz — *Santa Cruz, California*

BS in Applied Mathematics — *Sept 2020 - June 2024*

- **Courses:** Intro to Probability Theory, Intro to Proof and Problem Solving, Intro to Number Theory, Intro to Dynamical Systems, Mathematical Methods for Engineers, Foundations of Scientific Computing, Mathematical Modeling (1 & 2), Cryptography

Skills

Programming	Python (PyTorch, scikit-learn), LLM Systems (OpenAI APIs, embeddings, RAG, LangChain), FastAPI, React, PostgreSQL, C++, JavaScript, HTML/CSS
Miscellaneous	Git, LaTeX

Work Experience

HigherSummit — *Oakland, California*

Machine Learning Research Intern — *Sept 2023 - 2024*

- Researched educational frameworks and theories compatible with AI/NLP methods: https://arxiv.org/abs/2402.01770
- **Technical Skills:** Python, NumPy, Git, LaTeX, Prompt Engineering, GPT

Frontier AI — *San Francisco, California*

Machine Learning Engineering Intern — *June 2023 - Sept 2023*

- Built full-stack quiz software using LLMs as part of framework for enterprise micro-learning.
- **Technical Skills:** Python, PyTorch, NumPy, Git, LaTeX, Prompt Engineering, GPT, Open AI APIs

Chabot Space and Science Center / NASA Ames Visitor Center — *San Francisco, California*

Science Educator — *2016 - 2020*

- Galaxy Explorers program @ NASA Ames Visitor Center. Designed and built exhibits for science education and outreach (physics and chemistry). Worked as an Exhibit Presenter (676 hours), won two presidential medals.

Projects

QUD Empowered LLM Co-Writing Tool (Capstone) — *Sep 2025 – Dec 2025*

- Built a full-stack NLP system for question-based writing feedback using FastAPI, React, and PostgreSQL, implementing a two-phase pipeline for article preprocessing and low-latency student evaluation.
- Designed a semantic workflow that generates diverse LLM summaries, extracts implicit Questions Under Discussion (QUDs), clusters them via embeddings, and ranks "golden questions" using frequency + centrality scoring.
- Implemented embedding similarity with iterative greedy matching and LLM-as-a-judge verification to classify student coverage (Covered / Weak / Missing / Extra) at the question level.
- Led human evaluation with 100 participants across 10 articles; demonstrated statistically significant alignment between AI-ranked questions and human importance judgments ($r = 0.28$, $p = 0.002$).

HomeHelper – AI Agents for Appliance Troubleshooting — *Apr 2025 – Jun 2025*

- Co-developed multi-agent system using LangChain/LangGraph and SIM-RAG for appliance repair support.
- Integrated Llama-3 for orchestration, BLIP for vision analysis, and a Flan-T5 critic trained on iFixit synthetic data; evaluated on MyFixit dataset and synthetic multi-turn dialogues.

EduMUSE – Multimodal Educational Assistant *Apr 2025 – Jun 2025*

- Built interactive study system using CrewAI, where users upload PDFs, highlight text, and trigger AI workflows (summarization, quiz generation, contextual QA, knowledge retrieval, podcast-style audio).

Comparative Analysis of LLMs for Mental Health Counseling *Jan 2025 – Mar 2025*

- Evaluated proprietary and open-source LLMs (ChatGPT, Claude, LLaMA, Deepseek) on counseling capabilities using classification and generation tasks with comprehensive metrics.
- Developed annotation guidelines and analyzed inter-rater reliability to systematically assess therapeutic response quality across models.

Publications

Extending Interactive Science Exhibits into the Classroom using Anthropomorphized Chatbots and Bloom's Taxonomy
Yousuf Golding
2024