DIYA SAHA

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EDUCATION

University of California, Irvine **June 2025**
Master of Science, Computer Science

University of California, Santa Cruz **June 2023**
Bachelor of Science, Computer Engineering and Minor in Computer Science

SKILLS

Programming Languages: Python, Git, Java, SQL, MATLAB
Developer Tools: GCP, AWS, Figma, Langchain, HuggingFace, Streamlit, Docker/Kubernetes, Vercel
ML Frameworks: PyTorch, TensorFlow, Keras, Scikit-learn, GenAI, RAG, LLMs, MLOps
Certifications & Training: AWS AI Practitioner & AWS Cloud Practitioner, Google Certifications (Data Analytics, UI/UX Design)
Awards: Dean's Honor on multiple quarters; top 15% of my class

WORK EXPERIENCE

Graduate Researcher - Canine Cancer Research with Dr.Pierre Baldi | Irvine, CA **July 2024 – Oct 2024**

- Led the automation of clinical report summarization across 10,000+ canine patient records by fine-tuning LLMs (OpenAI GPT-4, LLaMA) to extract medical entities and diagnoses, eliminating the need for handwritten reports by veterinarians.
- Integrated OCR pipelines (Tesseract + OpenCV) to extract structured data from unstructured PDF clinical reports, resulting in a reduction in manual processing time by 30%.
- Utilized NER to identify correlations between biomarkers, drugs, and diagnoses, uncovering key patterns that contributed to advancing research in canine cancer diagnostics.

Graduate Researcher - Low Resource Language Research with Dr. Baldi| Irvine, CA **Sep 2024 – Nov 2024**

- Fine-tuned mBART on curated Nahuatl-Spanish corpus, developing a bidirectional translation system for a low-resource language.
- Engineered a parallel corpus using lexical substitution and back-translation to augment the training data, expanding the model's coverage and improving performance.
- Designed and ran controlled experiments comparing multiple fine-tuning strategies for mBART, using corpus inspection and statistical evaluation (Jaccard similarity, word distance) to quantify bias and improve BLEU scores by 15%.

Software Developer Intern - DSights.Inc| Los Angeles, CA **June 2022 – Sep 2022**

- Developed an NLP-based tool to compare and identify similarities between 50+ public menus from web pages, building a custom corpus of ingredients, recipes, and dishes to compare similarity between the restaurants.
- Utilized OCR to extract menu data, performing EDA with Seaborn, Matplotlib, and Pandas to find key trends in food offerings.
- Identified actionable opportunities for the client to optimize their menu, such as refining dish offerings and leveraging ingredient trends for targeted marketing and business strategies.

PROJECTS

TL;DW(Too Long; Didn't Watch)| Python, Streamlit, Gemini, Whisper 🔗 **Apr 2025**

- Developed an AI-powered Streamlit app that automates video summarization, topic extraction, and transcript generation using Whisper and Gemini LLM, enabling users to quickly digest long-form content.
- Integrated interactive quiz generation with auto-grading and LLM-based explanations, allowing users to reinforce their understanding by simply entering a URL.

CourseBuddy - Context-Aware Chatbot using RAG | Langchain, FAISS, HuggingFace 🔗 **Sep 2024**

- Built a vector database using FAISS, integrating the UCI course catalog, course prerequisites, and academic data, and powered an interactive chatbot via Streamlit.
- Leveraged RAG to enhance the chatbot's ability to provide personalized guidance on course selection, incorporating FAQs from Reddit, Quora, and public academic sites to minimize LLM hallucinations and ensure accuracy.

Diabetic Readmission Prediction Model for Healthcare Optimization | Python, Pandas, Matplotlib, Sklearn 🔗 **Sep 2023**

- Utilized a dataset from 130 US hospitals to predict diabetic patient readmission rates, achieving 90% model accuracy with classification, ensemble, and neural network models.
- Applied oversampling techniques (SMOTE, data imputation) to address class imbalance, and optimized model performance with feature selection and engineering.
- Developed a predictive model that provided insights to help hospitals reduce readmission rates, optimize resource allocation, and improve patient outcomes, potentially saving significant healthcare costs.