Nabeel Sabzwari - Computer Science, M.S.

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Skills

Languages: C/C++, Java, JavaScript, MATLAB, Python, R, SQL, TypeScript
Technologies: AWS, Cursor, Copilot, Docker, Django, Firebase, Flask, Git, GCP, Hugging Face, HPC, LangChain, Linux, LlamaIndex, Next.js, Pytest, PyTorch, RAG, RESTful APIs, React.js, ROS, Splunk, Snakemake, Tensorflow

Experience

Software Engineering Researcher (University of California, Davis) - Davis, CA Nov 2024 - July 2025
- Developed data analysis and visualization scripts in Python and R on an HPC cluster in Dr. Megan Dennis's lab, processing 10+ TB of genomic data to extract actionable biological insights.
- Integrated the data analysis scripts with 15+ open-source tools, formulated, and deployed over 20 optimized pipelines using Snakemake, Bash scripting, and Slurm, significantly reducing manual effort and runtime variability.
- Containerized data analysis pipelines using Docker to ensure reproducibility and efficiency across diverse bioinformatics tasks within the genomic pipeline.

Machine Learning Researcher (University of California, Davis) - Davis, CA Mar 2024 - Oct 2024
- Developed, trained, and evaluated convolutional-based models using Tensorflow in Dr. Laura Marcu's robotics lab to predict clean fluorescence signals from noisy tumor data, looking at R^2 and defining domain-specific metrics for model validation.
- Ensured model robustness by performing a random hyperparameter search using Optuna and K-Fold cross-validation with a held-out test set for final model training.
- Synthesized findings into a lab-reviewed research report that generated interdisciplinary interest and initiated collaborative research efforts.

System Engineering Co-Op (iRhythm Technologies) - San Francisco, CA Jan 2023 - Sep 2023
- Conducted over 20 system verification and validation tests for the Zio AT heart monitoring device, assessing BLE and cellular performance in varying coverage conditions by using DC power analyzers, oscilloscopes, and multimeters.
- Leveraged knowledge in Python, data structures, and algorithms to automate a test case, decreasing testing time by 80%.
- Designed and implemented a functional battery model for the heart monitoring device by creating a Python-based Monte Carlo simulation that more accurately represented field conditions, using Pytest for unit testing and adhering to SDLC practices.

Projects

My Moving Assistant - San Jose, CA Nov 2025 - Dec 2025
- Built an AI-powered relocation assistant using React, FastAPI, and Docker that orchestrates GPT-4o and Yelp AI API v2 to deliver comprehensive 7-step moving plans with location-based business recommendations.
- Optimized backend performance by implementing async parallel API calls with Python's asyncio, reducing latency by 75%, and integrated Supabase for secure authentication and conversation persistence across sessions.
- Designed intelligent conversation flow with LangChain that auto-generates chat titles, detects business queries in follow-ups, and dynamically fetches relevant Yelp data based on conversation context and user location.

Clipboard AI: Chrome Extension for User Productivity - San Jose, CA Oct 2025 - Nov 2025
- Built a Chrome extension that intelligently processes highlighted text to generate summaries, draft emails, or provide navigation links directly within the browser.
- Integrated Gemini Nano through Prompt, Summarizer, and Writer APIs, dynamically invoking Google Maps and Gmail APIs based on user intent.
- Designed a popup interface with JavaScript, HTML, and CSS, optimizing user flow and minimizing clicks for common actions.

My Workout Helper: Workout and Weight Tracking App - San Jose, CA Sep 2025 - Oct 2025
- Developed and deployed a responsive web application for logging and visualizing workouts and weight trends using React, React Router, and Recharts.
- Integrated Firebase Authentication for user sign-in and Firestore for real-time storage and retrieval of workout and user data.
- Implemented full CRUD operations for user workouts and weight entries through Firebase APIs.
- Designed an intuitive and modern user interface using Tailwind CSS, ensuring a seamless user experience across devices.

Skin Cancer Lesion Classification - Davis, CA Mar 2025 – June 2025
- Developed a CNN-based computer vision pipeline in PyTorch to classify skin lesions and evaluate model bias across diverse skin tones.
- Fine-tuned a ResNet50 model on prelabeled MSKCC skin lesion data to classify six skin tone categories, achieving a 91% within-one accuracy, 75% precision, and 72% recall.
- Curated a diverse skin tone image dataset by training StyleGAN2 on MSKCC and DermaMNIST-E data, achieving a 91% recall in classifying malignant tumors for darker skin tones.

Education

Masters of Science, Computer Science (University of California, Davis) Sep 2023 - June 2025
- GPA: 3.7
- Relevant Coursework: Probability Models for Computer Science, Machine Learning and Discovery

Bachelor's of Science, Bioengineering (University of California, Berkeley) Aug 2020 - Dec 2022
- GPA: 3.8
- Relevant Coursework: Python Fundamentals, Data Structures and Algorithms, Data Science, Robotics