# Daniel Hong

AI/ML Research Engineer & Software Engineer
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## Education

**University of California, Santa Cruz** Sept 2022 – Present
*Bachelor of Science in Computer Science, Bachelor of Arts in Economics* *Santa Cruz, CA*

GPA: 3.72/4.0 | Dean's Honors | Expected Graduation: June 2026

- **Courses**: Applied Machine Learning: Deep Learning, Data Structures and Algorithms, Principles of Computer Systems Design, Computer Architecture, Embedded Operating Systems, Networking and the Internet

## Skills

**Technical Skills:** Python, C++, Java, JavaScript | PyTorch, TensorFlow, HuggingFace | Git, Docker, Linux | SQL, OpenCV | APIs, Flask, Tailwindcss, React, Nextjs | Raspberry Pi, ESP32

## Experience

**Information Technology Help Desk** Apr 2025 - Present
*Mount Hermon Conference Center* *Mount Hermon, CA*

- Collaborated with cross-functional teams to diagnose and resolve critical technical issues, reducing average resolution time by implementing systematic troubleshooting protocols.
- Architected and deployed SQL database solutions for both consumer-facing and internal applications, supporting seamless data operations.

**Undergraduate Researcher** Jan 2025 - Present
*ERIC Lab, University of California, Santa Cruz* *Santa Cruz, CA*

- Performed MLLM research through comprehensive model evaluation, benchmark development, and novel model pipelines.
- Co-authored research paper for **PhyWorldBench**, a novel benchmark methodology for assessing physical coherence in generative AI models. Written in collaboration with NVIDIA research team. Paper submission accepted as CVinW Spotlight.

**Group Tutor/Course Reader** Mar 2024 - Present
*Baskin Engineering, University of California, Santa Cruz* *Santa Cruz, CA*

- Tutored for Machine Learning, working closely with students to help implement and teach machine learning algorithms and artificial intelligence in Python.
- Graded for Applied Discrete Mathematics.

**Software Development Intern** Jun 2020 – Aug 2021
*Caltech* *Pasadena, CA*

- Developed a Python based GUI application utilized to analyze the properties of nanomaterials with databases with more than 1500 entries per material.
- Utilized MatPlotLib as well as OpenCV to support researchers in visualizing the effect of mechanical stresses on nanomaterials, and qualitatively assessing material behavior at failure under mechanical stress.

## Projects

**PhyWorldBench** | *MLLM, Video Generation* Feb 2025

- Developed comprehensive benchmark framework in collaboration with NVIDIA Imaginaire team to evaluate physical realism in AI-generated video content. Research featured in CVinW as a spotlight paper.
- Performed data evaluation, prompt creation, technical writing.
- Integrated multiple open-source MLLM and VLM architectures to create robust evaluation pipeline for generative AI model assessment.
- Link to paper: arxiv

**Minkyo** | *Logistics Management Tool* Jan 2025

- Discord application built to manage logistics for an extracurricular organization with 300+ members.
- Utilizes heuristic algorithms, API calls, Python, and Flask, hosted on a Raspberry PI using Debian Linux.

**Wildfire Prediction Model** | *Computer Vision, Deep Learning* Dec 2024

- Developed advanced wildfire prediction model analyzing 5,000+ satellite images of wilderness regions for proactive risk assessment.
- Fine tuned image classification models to reach a wildfire prediction accuracy of 99%.
- Implemented comprehensive ML pipeline with PyTorch and TensorFlow, and experimened with YOLOv8, ResNet, and Few-Shot Learning methodologies.