

Philip Suh

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EDUCATION

Stanford University

Sep. 2023 – Jun. 2027

B.S. in Computer Science

GPA: 3.93

Relevant Coursework: Data Structures & Algorithms, Systems, Networking, Machine Learning, Computer Graphics

Organizations: Stanford Association for Computing Machinery (ACM), Stanford University Physics Society (SUPS)

TECHNICAL SKILLS

Languages: Python, JavaScript/TypeScript, Java, C++, C, SQL, HTML, CSS

Frameworks/Libraries: React, Next.js, FastAPI, PyTorch, TensorFlow, XGBoost, scikit-learn, OpenCV, Pandas

Developer Tools: PostgreSQL, Git, Jupyter, Conda, Vite, FFmpeg, Bash, Docker

EXPERIENCE

Software Developer Intern

May 2024 – Present

Shen Quantum Materials Lab

Stanford, CA

- Developed machine learning and Bayesian computer vision models for automated microwave impedance microscopy under Prof. Zhi-Xun Shen, using Python (PyTorch, OpenCV, scikit-image) to improve system reliability by 40%.
- Engineered a localization and data acquisition pipeline with sub-micrometer position tracking (HOG descriptors, normalized cross-correlation), reducing manual scanning time by 90% per experiment.
- Built a Model Context Protocol (MCP) server enabling AI assistants to control Nanonis and Attocube hardware; implemented 15+ tools for automated acquisition, particle filter-based localization, and centering workflows.

Data Science Intern

Jun. 2024 – Sep. 2024

Kavli Institute (KIPAC)

Stanford, CA

- Applied non-parametric modeling and statistical analysis (NumPy, SciPy, Pandas, Astropy) to study cross-feature relationships, improving data calibration accuracy by approximately 20%.
- Built automated Python pipelines to clean and integrate multi-source datasets, reducing repetitive analysis tasks and scaling processing to thousands of observations.

Machine Learning Intern

Dec. 2023 – Jun. 2024

SLAC National Laboratory

Menlo Park, CA

- Benchmarked a permutation-invariant anomaly detection model (scikit-learn) across 1M+ simulated particle-event records, achieving high classification performance (96% accuracy equivalent) in rare event identification.
- Diagnosed data imbalance and oversampling artifacts in simulations that degraded model reliability, prompting generation of higher-quality datasets and improving training stability.

PROJECTS & ACTIVITIES

Counterwatch | *Next.js, TypeScript, PostgreSQL, TensorFlow, XGBoost*

Jun. 2025 – Present

- Developed a full-stack analytics platform for Overwatch 2 combining web, database, and ML components, with a PostgreSQL ETL pipeline processing 17k+ data points per game to reduce analysis time by 70%.
- Built time-series aggregation, caching, and ML models (XGBoost/TensorFlow) to generate matchup insights.

Poker Sync | *React, Vite, Gemini API, ElevenLabs, Flask, Python*

Apr. 2025

- 3rd Place – AGI House Google AI Build Weekend Hackathon for creating an AI poker commentator with real-time video analysis and synchronized speech using Gemini 2.0 Flash and ElevenLabs.
- Implemented a Flask backend and React + Vite frontend with a caching pipeline enabling near real-time playback and low-latency interaction.

MIM HyperControl GUI | *PyQt5, OpenCV, scikit-image, PyVISA, Matplotlib, Python*

Jan. 2025 – Oct. 2025

- Created a GUI using PyQt5 integrating five instrument-control modules into a single real-time interface with 100 ms visualization latency.
- Implemented scalable control and plotting workflows for reliable experiment execution and hardware integration.

SIG Discovery Day | *Susquehanna International Group*

Mar. 2024

- Participated in a selective quantitative-finance program applying data-driven methods to trading strategy design and market-simulation exercises.