Philip Suh

213-434-1129 | philip.suh001@gmail.com | linkedin.com/in/phlpsuh | philip-suh.com

Education

Stanford University Sep. 2023 – Jun. 2027
B.S. in Computer Science *GPA: 3.98*
Relevant Coursework: Data Structures & Algorithms, Systems, Networking, Machine Learning, Probability Theory
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, PyQt5, TensorFlow, PyTorch, 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 systems reliability by 40%.
- Built an automated computer vision system using OpenCV, SciPy, and pandas for real-time localization and data acquisition, reducing manual scanning time by 90% per experiment and improving control system optimization.
- Designed an interactive GUI (PyQt5) with modular architecture for scalable data processing pipelines, real-time visualization, and hardware integration.

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.
- Designed a Bayesian computer vision module to automate scanner positioning and improve navigation precision.

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.