Philip Suh

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Education

Stanford University **September 2023 – June 2026**
B.S. Physics, GPA: 4.04/4.00 *Stanford, CA*

Experience

Summer Undergraduate Research Program (SURP) - Stanford University **June 2024– Present**
Research Intern for Professor Vahe Petrosian

- Analyzing the relation between accretion disks and jets in Active Galactic Nuclei determining the bi-variate radio-gamma luminosity function
- Establish the cosmological evolution of the bivariate luminosity function through analysis of radio and gamma band data of quasars
- Computationally implemented the non-parametric method of Efron and Petrosian, handling positional and photometric data from SDSS, Fermi-LAT, and VLBI

Shen Laboratory MIM Group Internship - Stanford University **May 2024– Present**
Research Intern for Professor Zhi-Xun Shen

- Creating a convolutional neural network to aid in scanning a sample for microwave impedance microscopy in a region with given optical markers indicating direction
- Analyzing how different marker designs in experimental set up contribute to efficiency of neural network in determination of sample position within cryogenic instruments
- Explored viability of an alternative approach using reinforcement learning for the same task

ATLAS Group Internship - SLAC National Laboratory **December 2023– June 2024**
Research Intern for Dr. Julia Gonski

- Worked with proprietary permutation invariant anomaly detection machine learning framework for analyzing beyond the standard model tracking signatures
- Analyzed dark matter interactions through simulated data of displaced and semi-visible jets in comparison to standard QCD models
- Assessed samples for viability and tested for underfitting/overfitting during the model's training

Nuclear Physics Research Internship - UCLA **May 2021– September 2023**
Research Intern for Professor Huan Huang

- Analyzed particle spectra and nuclear modification factors from LHC and RHIC data to determine trends in energy loss using ROOT Cern data analysis framework
- Created an alternative model describing fractional energy loss trends and studied how this affects the analysis of proton and lead collisions
- Contributed to the paper *Contrasting Features of Parton Energy Loss in Heavy-Ion Collisions at RHIC and the LHC*

Summer Science Program in Astrophysics (SSP) **June 2022– July 2022**
Research Intern

- Tracked the potentially-hazardous near-Earth 1981 QA, publishing both positional and photometric data in the Minor Planet Circular Supplement
- Used the Method of Gauss to determine the six orbital elements characteristic of the asteroid's projected orbit with considerations of eventual divergence using Monte-Carlo uncertainty propagation
- Utilized simulation software to calculate potential long term consequences of Asteroid 1981 QA colliding with Earth

Skills and Interests

- Programming: C++, Python, Java, MATLAB
- Interests: Astrophotography, Card Games, Basketball, Track and Field