

SAM YOUNG

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EDUCATION

Stanford University Ph.D. in Physics Research interests: particle physics, machine learning	Stanford, CA 2023 – 2028
University of Pennsylvania M.S. in Physics Thesis: Large-scale Hybrid Neutrino Detection with Spectral Sorting Advisor: Josh Klein	Philadelphia, PA 2021 – 2023
University of Pennsylvania B.A. in Physics (with Honors) summa cum laude	Philadelphia, PA 2019 – 2023

WORKING EXPERIENCE

Stanford University Graduate research assistant (rotation) <ul style="list-style-type: none">Working on hardware R&D for the nEXO neutrinoless double beta decay experiment.	2024 – Present Palo Alto, CA
SLAC National Laboratory, CERN Graduate research assistant (rotation) <ul style="list-style-type: none">Conducted a feasibility study of using transformer-based anomaly detection for the detection of long-lived particles at the Large Hadron Collider.	2024 Menlo Park, CA
SLAC National Laboratory, Stanford University Graduate research assistant (rotation) <ul style="list-style-type: none">Developed data-driven surrogate model of light propagation in a liquid argon time projection chamber using implicit neural representations.	2023 Menlo Park, CA
University of Pennsylvania Undergraduate research assistant <ul style="list-style-type: none">Studied the efficacy of spectral photon sorting in future hybrid neutrino detectors and developed a novel neutrino vertex reconstruction algorithm.	2020 – 2023 Philadelphia, PA
National Astronomical Observatory of Japan Research intern <ul style="list-style-type: none">Developed a Python library that automatizes Gamma-ray burst light curve studies.	2021 – 2022 Tokyo, Japan
SLAC National Laboratory U.S. DOE Science Undergraduate Laboratory Internship <ul style="list-style-type: none">Analyzed and cataloged the largest dataset of optical data of Gamma-ray burst light curve afterglows and discovered a three-dimensional luminosity-time correlation.	2021 – 2021 Menlo Park, CA

SKILLS & INTERESTS

Fundamentals: scientific research and writing, data science and analysis, Bayesian optimization and inference, machine learning, virtual reality, data scraping, computational physics, public speaking
Computing: Python (Advanced), scientific computing, Java, Unix, \LaTeX , Mathematica, some C++, ROOT
Language: English (native), Simplified Mandarin Chinese (intermediate), Classical Chinese (beginner)

REFEREED PUBLICATIONS

- Dainotti, M. G., **Young, S.**, Li, L., Levine, D., Kalinowski, K. K., Kann, D. A., Tran, B., Zambrano-Tapia, L., Zambrano-Tapia, A., Cenko, S. B., Fuentes, M., Sánchez-Vázquez, E. G., Oates, S. R., Fraija, N., Becerra, R. L., Watson, A. M., Butler, N. R., Gonzalez, J. J., Kutryev, A. S., Lee, W. H., Prochaska, J. X., Ramirez-Ruiz, E., Richer, M. G., Zola, S., The Optical Two- and Three-dimensional Fundamental Plane Correlations for Nearly 180 Gamma-Ray Burst Afterglows with Swift/UVOT, RATIR, and the Subaru Telescope. *The Astrophysical Journal Supplement Series* **261**, 25. doi:10.3847/1538-4365/ac7c64 (July 2022).

INVITED AND CONTRIBUTED TALKS

APS April Annual Meeting <i>Differentiable surrogate for modeling the physics of optical propagation in a LArTPC</i>	Contributed, 2024
Sixteenth Marcel Grossmann Meeting <i>The Optical Two- and Three-Dimensional Fundamental Plane Correlations for More than 130 Gamma-Ray Burst Afterglows</i>	Invited, 2021
APS April Annual Meeting <i>Reconstruction Results of Spectral Photon Sorting in Large-Scale Neutrino Detectors</i>	Contributed, 2021
APS Mid-Atlantic Section Annual Meeting <i>Impact of Spectral Photon Sorting in Large-Scale Neutrino Detectors</i>	Contributed, 2020
Dipping Into Data Science <i>Center for Undergraduate Resources and Fellowships</i> <i>Using Large-Scale Neutrino Detector Data to Identify and Reconstruct Subatomic Particles</i>	Contributed, 2020

AWARDS AND HONORS

Stanford CS 229 Best Project Award (pileup synthesis and transformer-based anomaly detection at ATLAS)	2024
Phi Beta Kappa	2023
Roy and Diana Vagelos Challenge Award (two years full tuition and fees)	2021 – 2023
Marshall Scholarship Finalist	2022
Dean's List	2021 - 2022
NASA Pennsylvania Space Grant Undergraduate Scholarship	2021

EXTRACURRICULARS

Center for Undergraduate Research and Fellowships , <i>Research Peer Advisor</i> <ul style="list-style-type: none">Peer mentor to a small number of first and second years at Penn interested in conducting research as undergraduates. (13 total)	2020, 2021, 2022
Society of Physics Students , <i>Academic Co-chair</i> <ul style="list-style-type: none">Jointly lead the Society of Physics Students.	2020 – 2023
Kite and Key Society , <i>Tour Guide</i> <ul style="list-style-type: none">Lead a group tour of 30 prospective students and parents around campus.	2019 – 2021