

Povilas Hubert Pugzlys

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Education

Bachelor of Science in Physics

May 2026

University of Florida, Gainesville, FL

GPA: 3.91/4.0

Research Experience

Summer Researcher under Dr. Nicole Yunger Halpern

June 2025 - Present

University of Maryland

- Developing exact diagonalization framework to analyze initial state coherence effects through Kirkwood Dirac Quasiprobability distributions and Renyi entropies of quantum thermodynamic systems

Research Assistant under Dr. Chunjing Jia

Jan. 2023 - Present

University of Florida

- Exploring condensed-matter physics with a focus on spintronics, topological spin textures, and 2D materials
- Implemented VAMPIRE framework, an atomistic spin simulation using C++, Python, and Cuda, on HiPerGator, UF's supercomputer, to study skyrmion phase transitions
- Led project on using neural networks to extend quantum spin dynamics in space and time

Research Assistant under Dr. Philip Chang

Aug. 2023 - Sept. 2025

University of Florida

- Developed software used in Line Segment Tracking (LST), a charged particle tracking software for the CMS experiment
 - Led a study on identifying sources of track candidate duplicates, categorized ~90% of all duplicate sources in the LST
 - Contributed to the official CMS code base on github that will be used at the LHC during the high luminosity runs
 - Presented in weekly internal and collaborator meetings
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Publications

- [1] Zhu, Max, et al. "Active Learning for Discovering Complex Phase Diagrams with Gaussian Processes."

2024. *Arxiv*, <https://doi.org/10.48550/arXiv.2409.07042>

Fellowships and Scholarships

AI Scholar

University of Florida

Aug. 2025 - May 2026

- Awarded to fund undergraduate researchers with promising AI/ML focused projects

Dr. Chris B. Schaffer Scholarship

University of Florida

May 2024 - Aug. 2024

- One of two students at UF to receive the Schaffer award to continue my research into the summer on ML methods for extending spin dynamics under Dr. Chunjing Jia

Institute for Research and Innovation in Software for HEP (IRIS-HEP) Fellow

Princeton University

May 2023 - Aug. 2023

- Worked with Dr. Philip Chang on developing a GNN for charged particle tracking for use in the CMS experiment
- Learned the fundamentals of high energy physics and the machine learning methods
- Led hyperparameter analysis to improve model efficiency

Summer Schools

Computational and Data Science Training for High Energy Physics (CODAS-HEP)

July 2024

Princeton University

- Refined parallelization computational techniques in C and python such as multithreading and GPU parallelization
- Participated in daily workshops and invited talks focused on high-performance and high-throughput techniques in physics

Center for Matter at Atomic Pressures (CMAP) Summer School

June 2023

University of Rochester

- Utilized PIC and MHD simulations to study planet formation and plasma jet collisions
- Attended daily talks from invited speakers on warm dense matter
- Participated in daily workshops focused on the fundamentals behind PIC and MHD simulations

Conferences

Sanibel Symposium - Poster Presenter

Feb. 2024, Feb. 2025

Southeastern Section APS Conference (SESAPS) - Poster Presenter

Oct. 2024

APS Global Physics Summit - Session Speaker

March 2025