

# Curriculum Vitae

## Lily DiPaulo

Florida Institute of Technology  
fdipaULO2023@my.fit.edu

### Education:

2023 – 2025      **B.S. in Mathematical Sciences**, Florida Institute of Technology  
*Physics Minor*  
*GPA: 3.89/4.0, Major GPA 3.93/4.0*

### Research:

Fall 2024      **Neural Network Simulation of Gamma-Ray Burst Afterglows**  
Worked in Dr. Donald Warren's research group to develop a Python-based neural network that simulates the spectral evolution of gamma-ray burst afterglows.

Summer 2024      **Decomposition of Finite Element Spaces for Double Forms**  
Conducted research under Dr. Yakov Berchenko-Kogan, focused on decomposing spaces of differential forms with applications in numerical simulations of elasticity and general relativity

Fall 2023      **Muon Detectors for Experimental Particle Physics**  
Contributed to constructing and testing cylindrical muon detector prototypes in Dr. Hohlmann's Lab and worked on particle detectors for the CERN CMS experiment

### Employment:

Fall 2024      **Supplemental Instructor**  
Calculus 2

Fall 2024      **Grader**  
Calculus 1

Spring/Fall 2024      **Peer Tutor**  
Calculus 1-3, DiffEQ, Linear Algebra, PDE, Modern Physics

Spring/Fall 2024      **SGA Parliamentarian**

Fall 2023      **HEP Laboratory Assistant**

**Other Activities:**

- Fall 2024      **Independent Study of Nonlinear Functional Analysis**  
Studied Banach, Hilbert and Sobolev spaces, Ekeland's Variational Principle, Elliptic PDE, Nemytskii Mappings, mentored by Dr. Shibo Liu
- Fall 2024      **Support Vector Machine for Spam Message Classification**  
Developed a Python-based machine learning system to identify potential spam messages. Focused on using Support Vector Machines for classification.
- Spring/Fall 2024      **Student Government Association**  
Served as a student government senator for the Spring 2024 semester and Parliamentarian for the Fall. Worked with the Student Facilities and DEIA Committees.
- 2023-2024      **MATLAB Club**  
Helped run weekly developmental sessions for Florida Tech students, focused on using MATLAB for data analysis and industry applications
- 2023-2024      **Rocketry Club**  
Served as Outreach Coordinator and Secretary, collaborated with aerospace engineering students in the development of a hobbyist rocket for data acquisition of high altitude weather conditions

**Talks:**

- December 2024      **Decomposition for Spaces of Double Forms**  
Florida Institute of Technology Mathematics Graduate Seminar.

**Awards and Honors:**

- 2024    Dean's List, Florida Institute of Technology  
2024    3rd Place, FL-MAA & FTYCMA 57th Joint Annual Meeting Integration Contest  
2024    National Merit Scholarship Finalist  
2023    Membership, Phi Eta Sigma National Honor Society  
2023    Honors College, Florida Institute of Technology