Christopher J. Lombardi

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Summary

Applied Physics and Computer Science student with research and industry experience in machine learning, computer vision, and data-driven modeling. Proven track record of developing end-to-end ML solutions and presenting research at national conferences. Seeking roles in data science or ML engineering.

Skills

Programming Languages: Python, C++, Java, C, SQL

Machine Learning & Data Science: TensorFlow, Pytorch, Scikit-learn, XGBoost, Pandas, NumPy, Matplotlib, Seaborn

Tools & Platforms: Git, GitHub, Jupyter, Linux, Windows, Bash Scripting, VS Code

Experience

Thorlabs Vytran Division, Research Intern — Morganville, NJ
May 2025 – August 2025

- Designed an end-to-end machine learning model to classify fiber cleave images and predict optimal parameters for **5 fiber types**.
- Engineered a custom CNN model head on a pre-trained EfficientNet backbone, leveraging transfer learning to accuracy of over **90%** with F1 score of **88%** for unbalanced data.
- Built and integrated an XGBoost regression model to predict the precise tension adjustment needed to correct a suboptimal cleave, providing actionable feedback to operators

ISWS REU Program, Research Intern — Newark, NJ
May 2024 – July 2024

- One of **eight** students selected to participate in NFS funded research.
- Developed a Python-based pipeline to process and analyze time-series data for **8** stellar targets, writing a paper on the subject submitted to AAS journal

New Jersey Institute of Technology, Research Assistant — Newark, NJ
Aug 2023 – Present

- Analyzed Kepler mission light curves for **8 KIC stars**, identifying and characterizing hundreds of stellar flare events for frequency analysis
- Presented findings at the URI Symposium for NJIT and the Cool Stars Conference.

Presentations and Publications

Understanding the Sun's Magnetic Cycle with COFFIES, AAS Meeting — Jan 2025

Temporal Variations in Asteroseismic Frequencies of KIC 6106415: Insights from GOLF and Kepler Observations — arxiv.org/abs/2503.05076

- Studied temporal oscillation shifts in time-series data using space-based observations, connecting findings to solar-stellar activity cycles.

Projects

Personal Portfolio Website — christopherjlombardi.com

- Designed and deployed a portfolio website to showcase research, projects, and publications.
- Built using **Flask (Python)**, with responsive front-end design in **HTML, CSS, and Bootstrap**.
- Implemented modular project pages, interactive components, and deployed on a cloud server with custom domain.

Personal Training Website — thefitphysicist

- Full-Stack web app built with **Python, CSS, HTML, Javascript, SQLAlchemy**

Education

BS **New Jersey Institute of Technology**, Applied Physics and Computer Science — Aug 2023 - Present
- GPA: 3.93/4.0

AS **Essex County College**, Physics — September 2022 - August 2023
- GPA: 4.0/4.0

Honors and Awards

Undergraduate Student of the Year, NJIT Department of Physics — Spring 2025