# Christopher J. Lombardi

Newark, NJ 07103 | cjl78@njit.edu | 8623543910 | chrisjameslombardi | c-lombardi23

## Summary

Applied Physics and Computer Science student specializing in building machine learning solutions for complex physical systems. My background in data-driven modeling and simulation allows me to bridge the gap between real-world phenomena and predictive algorithms. Seeking a challenging role in data science or machine learning engineering.

## 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

## 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 and limited dataset
- Built and integrated an XGBoost regression model to predict the precise tension adjustment needed to correct a sub-optimal cleave, providing actionable feedback to operators

**ISWS REU Program**, Research Intern — Newark, NJ — May 2024 – July 2024
- One of 8 students selected to participate in NFS funded research.
- Developed a Python-based pipeline to process and analyze time-series data for 8 stellar targets, authoring a paper on the subject.

**New Jersey Institute of Technology**, Physics Tutor — Newark, NJ — Jan 2024 – Present
- Provide one-on-one and group tutoring sessions to undergraduate students, simplifying concepts and guiding them through various problem solving techniques

**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**, American Astronomical Society Meeting — National Harbor, MD — Jan 2025

**Temporal Variations in Asteroseismic Frequencies of KIC 6106415: Insights from GOLF and Kepler Observations** — arxiv.org/abs/2503.05076
- Submitted to AAS Journal

## Projects

**Personal Training Website** — github.com/newfitphysicist
- Full-Stack web app built with Python, CSS, HTML, Javascript, SQLAlchemy

## Skills

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

**Machine Learning:** Scikit-learn, Tensorflow, Pandas, NumPy, XGBoost, Matplotlib, Seaborn

**Developer Tools:** Git, GitHub, Jupyter Notebooks, Linux, Bash Scripting