

# Luke Mutz

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## EDUCATION

**Villanova University**, Villanova, PA

**August 2022-May 2024**

- M.S. in Applied Statistics & Data Science
- Athletic Director's Honor Roll & BIG EAST All-Academic Team
- Two-year member of the varsity baseball team

**Swarthmore College**, Swarthmore, PA

**September 2018-May 2022**

- B.A. in Economics & Biology (Double Major)
  - Four-year member of the varsity baseball team (Team Captain '22, ABCA All-American '22)
  - Centennial Conference Academic Honor Roll
  - PhillySIDA Academic All-Area Selection for performance in the classroom and on the baseball field
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## RELEVANT COURSEWORK

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|------------------------|--------------------------------------|--------------------------------|
| • Machine Learning     | • Data Mining & Predictive Analytics | • Statistical Programming      |
| • Categorical Analysis | • Linear Models                      | • Research Design and Analysis |
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## WORK EXPERIENCE

**Data Scientist - Epic Research**

**October 2024 - Present**

- Helping build an LLM-driven credit card recommendation tool that delivers quick results from minimal user input, through prompt engineering and OpenAI API integration. Using Snowflake to automatically ingest and transform new .avro files from Azure into clean, queryable SQL tables. Oversaw Epic's 'Boost' product, a digital marketing tool focused on customer acquisition for financial products, by synthesizing daily performance reports using data on ad spend, revenue, clicks, and more. Presented performance trends to stakeholders and provided actionable recommendations. Developed Python web-scraping scripts to collect and consolidate data on savings account interest rates.

**Biomedical Informatics Intern - Penn Medicine**

**June 2023 - February 2024**

- Performed Genome-Wide Association Studies, assisted with genetic phenotyping requests within the Penn Medicine BioBank, and assisted the postdoctoral researcher in the Verma lab.

**Teaching Assistant (MicroEcon. & Econometrics) - Swarthmore College**

**Fall 2020 & Fall 2021**

- Taught students microeconomics / statistical concepts related to economics via tutoring sessions, weekly homework clinics, and problem-set grading. Organized weekly office hours as requested.

**Resident Assistant - Swarthmore College**

**August 2021 - May 2022**

- Created a safe living environment for 60+ students by organizing community events, mediating student conflicts, and conducting dormitory rounds. Recipient of the Whardwell RA of The Year award.
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## PROJECTS

**Solar Energy Generation Personal Project**

- Used High Resolution Rapid Refresh Weather forecasts to predict hourly solar energy generation in the SP15 region of Southern California. Combined data from geographically significant locations and engineered time-aware features to train XGBoost and Random Forest models that outperformed CAISO forecasts in RMSE and MAE.

**Population Change Predictive Analysis**

- Constructed RNN, Random Forest, Decision Tree, and Best Subset Regression models in R to predict whether the population in a given Pennsylvania ZIP code would rise or fall between consecutive years using US Census data. Used F score and misclassification rate to compare model performance.

**Cincinnati Reds Hackathon**

- Used python to analyze 2023 MLB pitching data, optimizing positional roles between starters and relievers alongside a team of three others. Identified 4 starting pitchers who would perform better as relievers using a neural network for dimensionality reduction, and clustering for classification.
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## SKILLS & INTERESTS

- Python and R programming, Statistics, ML, SQL, Snowflake, Leadership, Communication
- NPR Tiny Desk Concerts, Classic Literature, Black Labs, Minecraft, Codecademy, Philadelphia Sports