Elliot Blackstone, Ph.D.

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SUMMARY

Mathematics PhD from the University of Central Florida with six years of postdoctoral experience. Data science and machine learning techniques have been honed by participation in the Erdős Institute data science boot camp and various Kaggle competitions. I am an award-winning educator and researcher with strong communication skills and a proven record of solving difficult problems in applied mathematics. Seeking a position as a Data Scientist or Machine Learning Engineer.

SKILLS & CERTIFICATIONS

- Languages & Platforms: Python (NumPy, pandas, scikit-learn, matplotlib, seaborn, Optuna), SQL, Mathematica, LaTeX
- Machine Learning: XGBoost, LightGBM, CatBoost, AutoGluon, SHAP, RandomForest, PyTorch
- Quantitative: Data visualization, mathematical modeling, statistical analysis, machine learning
- Soft Skills: Effective communication, critical thinking, collaboration, patience, problem solving, analytical mindset
- Certifications/Awards: Erdős Institute Data Science Boot Camp, UofM Honored Instructor, UCF best dissertation award

SELECTED PROJECTS

Predicting Calorie Expenditure - *The Erdős Institute* [LINK] [github] **Summer 2025**

- The objective of this project is to predict the calories burned during a workout. This was part of the Kaggle competition "Predict Calorie Expenditure". After exploratory data analysis, preprocessing, feature engineering, hyperparameter tuning, and cross-fold validation, an AutoGluon model was the top performer, which tied for **4th place out of 4,318 teams**. Lastly, SHAP values were used to assess feature importance and to improve explainability.

Forecasting Inventory Demand - *The Erdős Institute* [LINK] [github] **Spring 2025**

- My team's goal was to predict weekly demand for hundreds of different perishable baked goods purchased by ~800,000 different clients of Grupo Bimbo, a large food supplier in Mexico. The dataset (containing 75 million rows and 20 columns) was provided by a Kaggle competition hosted by Grupo Bimbo. After preprocessing, feature engineering, and hyperparameter tuning, our LightGBM model helped to right-size inventory demand.

WORK EXPERIENCE

University of Michigan: Ann Arbor, MI **2021 - 2025**

Postdoctoral Assistant Professor and James Van Loo Postdoctoral Fellow

- Co-authored a series of papers analyzing the Benjamin–Ono equation in the zero-dispersion limit, revealing universal patterns and soliton dynamics in nonlinear wave propagation. This work contributes to the mathematical foundations of fluid dynamics and modeling of complex systems.
- Developed course material and taught over 300 students between three calculus courses and nine differential equations courses. Topics taught include basic probability theory, polynomial regression, and mathematical modeling.
- Supervised two undergraduate student research projects on water wave equations.

KTH Royal Institute of Technology: Stockholm, Sweden **2019 - 2021**

Postdoctoral Researcher

- Co-authored four papers advancing the asymptotic analysis of random matrix models and integrable probability. Developed precise, generalizable methods to understand gap probabilities and universal behavior in complex systems, with applications in statistical physics and data-driven modeling.

University of Central Florida: Orlando, FL **2012 - 2019**

Research & Teaching Assistant

- Co-authored two papers as part of my PhD research that advanced the mathematical foundations of inverse problems and tomographic reconstruction—core techniques in signal processing and computational imaging.
- Developed course material and taught over 600 students between 12 calculus courses, two differential equations courses, and two linear algebra courses. Topics taught include linear regression, singular value decomposition, and multivariable calculus.

EDUCATION

University of Central Florida, *Ph.D. Mathematics* **2019**
University of Central Florida, *M.S. Mathematics* **2014**
Penn State Erie, *B.S. Mathematics (Statistics Minor)* **2011**