

(240) 899-0116
Lawrence, KS
hamblin.kurt@gmail.com

Kurt Hamblin

kurthamblin.com
github.com/hamblin-ku
linkedin.com/in/kurt-hamblin

PROFESSIONAL SUMMARY

- Data expert who thrives with messy, sparse datasets requiring careful cleansing and refinement, proven by building AGNBoost to extract actionable insights from noisy and sparse astronomical observations, achieving 100x faster predictions than traditional methods while maintaining statistical rigor needed for reliable model development
- Skilled statistical analyst with expertise in experimental design and machine learning, selecting optimal modeling approaches from classification to probabilistic regression, implementing feature engineering and model optimization techniques that transform raw data into reliable predictions with quantified uncertainties
- Collaborative scientist and effective communicator who builds strong cross-functional relationships, evidenced by contributing to international research teams, mentoring dozens of researchers through machine learning workshops, and securing competitive NASA fellowship by translating complex technical concepts for diverse audiences

WORK EXPERIENCE

NASA FINNEST Fellow / Graduate Research Assistant

August 2019 - Present

University of Kansas, Department of Physics & Astronomy

Lawrence, KS

- Built AGNBoost, an easy-to-use Machine Learning toolkit for astronomers built off XGBoostLSS models to identify supermassive Black hole activity in galaxies from noisy and sparse astronomical data, producing reliable estimates over 100x faster than traditional statistical methods, and reducing future survey cost needs by a factor of 10 by identifying candidate sub-populations of interest
- Implemented Generative Adversarial Networks for data imputation of missing astronomical data, increasing the available data for predictive modeling by a factor of 4
- Engineered Novel features to provide more accurate model estimates in parameter regimes of interest, increasing end predictive accuracy by 10%
- Utilized existing methodologies in innovative ways by using modeling tools to create large catalogs of billions of galaxies, permitting predictive modeling in previously unexplored areas
- Strong data storytelling skills and experience, as evidenced by over a dozen presentations at national and international conferences to both expert and non-expert audiences
- Experimental design and project management planning comprehensive analysis pipeline to measure star formation and black hole growth rates, extracting actionable insights about galaxy evolution from complex multi-dimensional datasets

Machine Learning Workshop Organizer

May 2023 - May 2025

University of Kansas

Lawrence, KS

- Demonstrated educational leadership by designing curriculum to introduce data science and machine learning techniques, creating hands-on tutorials for classification and regression using real-world datasets

TECHNICAL SKILLS

Programming: Expert-level Python (XGBoost, pandas, scikit-learn, PyTorch), SQL

Machine Learning: Predictive modeling using both supervised and unsupervised algorithms, missing data handling, model optimization, uncertainty quantification and probabilistic methods

Data Analysis: Large dataset processing, experimental design, Bayesian inference, time series analysis, data visualization, pattern recognition in novel datasets

EDUCATION

PhD in Physics, University of Kansas

Expected Spring 2026

B.S. in Physics, University of Maryland, Baltimore County

June 2019

SELECTED ACHIEVEMENTS

- NASA FINNEST Fellowship (2022-2025) - \$144k Competitive national fellowship demonstrating ability to drive value through innovative science approaches
- First-author publication on AGNBoost machine learning methodology addressing classification challenges (under review, ApJ)
- Contributing author on high-impact CEERS collaboration paper identifying early universe galaxies (Finkelstein et al. 2022, ApJ)
- Student Presentation Prize (2023) - Excellence in data storytelling and technical communication to diverse audiences