Zamiul Alam

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SUMMARY

Physics graduate with 3+ years of experience applying machine learning and quantitative methods to solve complex problems. Fast learner with exceptional attention to detail and a commitment to delivering high-quality results. Seeking opportunities in data science and quantitative analysis to tackle real-world challenges with data-driven solutions.

EDUCATION

Washington University in St Louis, *Master's in Physics* **Aug 2023 – Aug 2025**
Northern Illinois University, *Master's in Physics* **Aug 2021 – Aug 2023**
University of Dhaka, *Bachelor's in Physics* **Jan 2013 – Aug 2019**

TECHNICAL SKILLS

- Languages & Platforms: Python, SQL, R, Tableau, Mathematica, MATLAB, Jupyter, Linux, Git, MS Word, MS Excel
- Python Libraries: Pandas, NumPy, scikit-learn, Matplotlib, Seaborn, Folium, XGBoost, CATBoost, PyTorch, TensorFlow
- Machine Learning: Time Series Analysis, Regression, Inference, Classification, Clustering, Boosted Trees, Neural Networks, Natural Language Processing, Large Language Models, Deep Learning, Artificial Intelligence (AI)
- Soft Skills: Communication, Collaboration, Adaptability, Leadership, Punctuality, Critical thinking, Creativity

CERTIFICATIONS

- The Erdős Institute Data Science Boot Camp: **Jul 2025**
  Completed an intensive Data Science Boot Camp, developing end-to-end data science workflows including data cleaning, exploratory data analysis, predictive modeling, and results presentation through a team-based project.
- IBM Data Science Professional Certificate: **May 2025**
  Completed a 12 Course Professional Certificate in Data Science and Machine Learning with hands-on experience in Python, SQL, data analysis, visualization, and model development through cloud-based projects and a capstone.

SELECTED DATA PROJECTS

Finding Fraudsters - *The Erdős Institute* [Link], [Slides] **Jul 2025**
- Built fraud detection models (XGBoost, LightGBM, CATBoost) on IEEE credit card fraud dataset with 590,000+ transactions.
- Dealt with severe class imbalance (3.5% fraud rate) and tuned hyperparameters to achieve a 93% ROC AUC

Chicago Crimes Data Analysis - *Self-guided Project* [Link] **Mar 2025**
- Analyzed crime data from the Chicago Data Portal which contained 8 million rows and developed SARIMA time series models
- Created clear interactive maps with Seaborn and Folium generating actionable predictions for public safety authorities.

Predicting Employee Attrition - *Self-guided Project* [Link] **Aug 2025**
- Built supervised (Logistic Regression, Random Forest, XGBoost) and unsupervised (K-Means) models on IBM HR Analytics dataset
- Used scaling, one-hot encoding and clustering to uncover key attrition drivers (income, satisfaction, tenure)

WORK EXPERIENCE

Washington University in St. Louis: St. Louis, MO **Aug 2023 – Aug 2025**
Arts & Sciences Graduate Fellow
- Conducted research on Dark Matter and Neutron Stars, performing large-scale simulations and statistical inference under uncertainty.
- Presented research results to faculty and peers, honing skills in translating technical work into clear, actionable insights.

Northern Illinois University: Dekalb, IL **Aug 2021 – Aug 2023**
Research Assistant & Teaching Assistant
- Used chi-squared tests and Regression models to fit particle physics data, reduced computation time by 90%.
- Taught physics lab sections, mentoring students in experimental design and scientific computing.

RESEARCH EXPERIENCE

Standard model at 200 GeV (published in **Phys Rev D**) [Link]
Dark matter boosted by Pb collisions (paper in progress)