NASHEED JAFRI

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EDUCATION

Ph.D. Mathematics (Ph.D. Minor in Data Science)	**GPA : 3.98**
Indiana University, Bloomington, IN	2020 - 2026
M.S. Applied Statistics	**GPA : 4.00**
Indiana University, Bloomington, IN	2024 - 2026
M.S. Mathematics	**GPA : 3.70**
Indian Institute of Technology, Delhi, India	2018 - 2020
B.S. Mathematics (Honors)	**GPA : 3.82**
University of Delhi, India	2014 - 2017

PROJECTS

Home Credit Loan Default Prediction   [Link] [GitHub]
- Collaborated with a team of data scientists to predict loan defaults for Home Credit using Machine Learning techniques in Python on large datasets containing 300k to 27 million samples, achieving 92% test accuracy.
- Conducted EDA, handled missing values, performed correlation analysis and feature engineering.
- Built and optimized models (Logistic Regression, Decision Trees, Random Forests, Gradient Boosting, XGBoost, SVC and MLP neural networks) using PCA and ensemble methods like voting and stacking.

Approximate Bayesian Computation for Disease Outbreak   [Link] [GitHub]
- Implemented Approximate Bayesian Computation in R to fit an epidemic model for influenza outbreaks.
- Created custom functions for parameter sampling, data simulation, and ABC rejection sampler algorithm.
- Performed model comparisons by estimating posterior probabilities to analyze variations in infection transmission rates across outbreaks of the same strain and different strains of the virus.

EXPERIENCE

University of Illinois, Urbana - Champaign, IL   Sep 2023 - Feb 2024
Data Science Trainee (Internship Network in Mathematical Sciences)
- Completed training workshops on Python, Statistics and Machine Learning.
- Analyzed housing data from Redfin, applied linear regression to predict house prices across different cities.
- Performed EDA, hypothesis testing, and employed forward, backward, and stepwise model selection techniques to predict wine quality based on physicochemical attributes from the Vinho Verde wine dataset.

Indiana University, Bloomington, IN   Aug 2021 - May 2026
Associate Instructor in Linear Algebra for Data Science
- Mentored students in key subjects including vector spaces, matrix operations, eigenvalues, least squares, singular value decomposition (SVD), and principal component analysis (PCA).
- Planned engaging weekly group learning activities within the class setting.

Assistant Instructor in Probability and Statistics for Data Science
- Developed curriculum to apply data analysis to real-world problems in social and natural sciences.
- Taught conditional probability, random variables, distributions, statistical inference and hypothesis testing.

REU Mentor
- Supervised a group of undergrad students in a graduate-level research project on Fourier Transform.

Research
- Conducting research in Functional Analysis with a focus on Linear Algebra and Matrix Theory, specifically studying the uniqueness of invariant subspaces for a class of nilpotent matrices.
- Exploring applications of combinatorics to matrix theory via structures called puzzles and honeycombs.

SKILLS

Mathematics: Probability, Statistics, Linear Algebra, Differential Equations, Numerical Analysis, Graph Theory, Dynamical Systems, Fourier Analysis, Econometrics, Markov Chains, Monte Carlo Simulations, Combinatorics

Data Science: Data Exploration, Linear Models, Hypothesis Testing, Regression, Classification, Statistical Computing, Predictive Models, Machine Learning Algorithms, Principal Component Analysis, Bayesian Inference

Programming: R, SQL, Python - Pandas, Numpy, Scikit-learn, TensorFlow, PyTorch; Git Version Control, Docker