Nikhil Roy

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EDUCATION

University of Maryland, College Park, MD — *Graduation: December 2025*
Master of Science: Machine Learning — GPA: 4.0

University of Pittsburgh, Pittsburgh, PA — *Graduation: April 2024*
Bachelor of Science*:* Data Science, Minor in Applied Statistics — *GPA*: 3.7

Skills: Python, R, SQL, Java, Computer Vision, NLP, Cloud Computing, Deep Learning, Jupyter Notebook, Scikit-learn, Pandas, Git, Jira

WORK EXPERIENCE

UnitedHealth Group — *Pittsburgh, PA*

Statistical Data Scientist Intern — *June 2024 – Present*

- Applied advanced statistical and mathematical methods to formulate practical machine learning models, classifying poor mental health days across several hundred features impacting patients among the United States, India, and Ireland
- Thoroughly presented findings at a conference hosted at UnitedHealth Group's headquarters in Minnesota

University of Pittsburgh — *Pittsburgh, PA*

Neurocognitive Machine Learning Researcher — *July 2023 – Present*

- Designed and implemented machine learning algorithms in patient Neural Cognitive Systems (NCS) to perform significant Bayesian statistical analysis to thoroughly model and predict students' cognitive states
- Engineered and optimized data pipelines for neurocognitive data preprocessing, feature extraction, and visualization, advancing to a 30% reduction in data processing time

UPMC — *Pittsburgh, PA*

Data Solutions Engineer Intern — *May 2024 – June 2024*

- Engineered a streamlined database architecture and aggregation process to analyze hospital patient SMS data sourced from Twilio JSON files, optimizing billions of data extracted daily
- Led the implementation of ETL schemas to facilitate seamless transformation of disparate data sources through database manipulation and migration utilizing SQL queries, resulting in a 35% increase in data processing
- Crafted a UI/UX design for a patient data information app using AngularJS and Figma, enabling doctors to efficiently access detailed patient data stored into PostgreSQL databases

PERSONAL PROJECTS

Pittsburgh Plate Glass Company (PPG) Machine Learning Engineer

- Developed several machine learning models for predicting crucial paint properties through supervised learning
- Integrated Bayesian Statistical models for optimization and tuned complex linear and advanced models, including neural networks, random forests, support vector machines, generalized additive model, gradient boosted trees, etc.
- Evaluated and visualized performance metrics to select models for enhancing predictive accuracy, RMSE, and ROC

NFL Statistical Sports Data Analysis

- Conducted comprehensive analysis of 54 seasons of NFL data from 1970 to 2024, focusing on team performance, scoring distributions, and predictive modeling using Bradley-Terry Models, billions of Monte Carlo simulations, and Elo ratings
- Produced detailed reports and visualizations to strongly communicate findings for ideal business growth and management

Machine Learning Predictive Analysis

- Efficiently built a Machine Learning model from scratch to forecast future scanned recipients for a specific business KPI, interpreting performance metrices such as prediction and confidence intervals
- Incorporated intensive Bayesian Inference methods to generate a unique Laplace Approximation function that returned the optimal posterior mode and standard deviation, using gradient descent, Bayesian inference, K-clustering, etc. to validate

EXTRACURRICULAR ACTIVITIES

South Asian Student Association (SASA)

- Coordinated events aimed at supporting community-based organizations like Glen Hazel and YMCA Urban Garden Projects
- Coordinated the SASA Show, assembling varied performances from Bollywood fusion groups, traditional South Asian dance teams, and the debut of the Asian-pop dance team, nurturing cross-cultural appreciation nationally

Computer Science Club

- Coordinated leadership through securing sponsorships from local industry leaders such as BNY Mellon and FAST Enterprises
- Hosted workshops, hackathons, and networking events vital for professional growth and community engagement