Nikhil Roy

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EDUCATION

University of Maryland, College Park, MD — *Graduation: December 2025*
Master of Science: Applied 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, SQL, R, Computer Vision, NLP, Cloud Computing, Deep Learning, Jupyter Notebook, Scikit-learn, Gradle, Jira, Git, Agile

WORK EXPERIENCE

UnitedHealth Group — *Pittsburgh, PA*

Statistical Data Scientist Intern — *June 2024 – Present*

- Applied advanced statistical and mathematical methods to formulate optimal machine learning models, classifying poor mental health days, impacting billions of patients across the United States, India, and Ireland
- Traveled to the headquarters in Minnesota to present findings to management and clients with thorough communication

University of Pittsburgh — *Pittsburgh, PA*

Neurocognitive Machine Learning Researcher — *July 2023 – Present*

- Deployed mathematical machine learning algorithms in Neural Cognitive Systems (NCS), achieving 92% accuracy in predicting students' cognitive states through theoretical statistical analysis
- Optimized data pipelines for neurocognitive data preprocessing, audio 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 unstructured 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

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

- Engineered a machine learning model from the ground up to predict unseen scanned recipients for a key business KPI, evaluating prediction and confidence intervals, improving forecast accuracy by 25% with optimization
- 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.

Pittsburgh Plate Glass Company (PPG) Machine Learning Engineer

- Developed advanced supervised learning algorithms to forecast critical paint characteristics, resulting in a 35% reduction in product defects and a 20% increase in customer satisfaction
- Integrated Bayesian Statistical models and tuned 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

EXTRACURRICULAR ACTIVITIES

Taekwondo

- Triumphed several gold medals in international sparring tournaments, breaking boards, and competitive use of weapons
- Earned the opportunity to teach evening classes to students needing assistance through educating self-defense, sparring, communication, and discipline

South Asian Student Association (SASA)

- Lead events aimed at supporting community-based organizations like Glen Hazel and YMCA Urban Garden Projects
- Coordinated a show with diverse dance performances, embracing cross-cultural appreciation among thousands of students