FRANCIS BOATENG

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Boca Raton, FL 33486

EDUCATION

Master of Science in Mathematics *May 2024*
Florida Atlantic University (FAU) – Boca Raton, FL *GPA: 3.77/ 4.0*

Bachelor of Science in Actuarial Science *September 2021*
Kwame Nkrumah University of Science and Technology – Kumasi, Ghana *GPA: 3.84/ 4.0*

SKILLS SUMMARY

- **Languages:** R, Python, SAS, SQL
- **Frameworks:** Pandas, NumPy, Scikit-Learn, Matplotlib, dplyr, tidyr, caret, ggplot2, R-Shiny
- **Tools:** Power BI, Tableau, Microsoft Office proficiency (Advance Excel, Word, PP), MySQL
- **Platforms:** Jupyter Notebook, Visual Studio Code, R Studio, R Cloud
- **Soft Skills:** Attention to Detail, Results-Oriented, Time Management, Excellent Interpersonal skills, Understands Grammar, Proofreading, Strong Problem Solver.

RELEVANT PROJECTS AND RESEARCH EXPERIENCE

Fraud Detection Modeling for Credit Card Transactions April 2024
Developed and evaluated machine learning models to detect credit card fraud, achieving high accuracy rates: 99.99% (Random Forest), 99.35% (Logistic Regression), 94.91% (Neural Network), and 50% (Decision Tree). Demonstrated expertise in fraud detection, predictive modeling, and security enhancement, minimizing potential losses. *(GitHub)*

HR Analytics Dashboard March 2024
Developed an HR analytics dashboard in Tableau that tracked attrition rates and demographics, visualizing departmental distribution, job satisfaction, and education-driven attrition, resulting in a 30% increase in data visibility and a 20% improvement in decision-making efficiency. *(Click Here)*

Customer Behavior Analysis and Segmentation January 2024
Analyzed customer behavior for a UK-based online retailer, uncovering hidden patterns and segmenting customers using K-Means clustering. Achieved a 15% increase in targeted marketing effectiveness and a 20% improvement in customer experience.

Time Series Analysis of US Monthly Unemployment Rates November 2023
Performed a concise time series analysis on US monthly unemployment rates from 1948 to 2022. Explored trends, seasonality, and patterns through data visualization. Employed ARMA models, selected the optimal model (ARMA (15,19)) based on AICC, and thoroughly analyzed residuals for normal distribution and lack of autocorrelation.

Dimensionality Reduction of an NBA Dataset March 2023
Applied principal component analysis (PCA) to an NBA dataset in R, revealing insights through data investigation. I utilized a biplot that visually demonstrated that 90% of players with the same position clustered at the same point and the dispersion of players with different positions.

RELEVANT WORK EXPERIENCE

Graduate Research and Teaching Assistant – *FAU – Boca Raton, FL* August 2022 – May 2024

Florida Summer Institute in Biostatistics and Data Science

- Conducted thorough exploratory data analysis on a stroke dataset, developing a predictive machine-learning model. Designed an interactive R-Shiny app featuring dataset statistics, custom visualizations, and stroke occurrence prediction with a GLM, achieving an 87% accuracy rate, Supervised by Dr. Lun-Ching Chang. *(Click Here)* to try the Shinny App. *(GitHub)*

Department of Mathematics and Statistics

- Analyzed diamond attributes (cut, carat, price) using Python for regression and visualization. Identified significant trends, emphasizing carat weight and cut's impact on pricing, where I achieved 85.65% predictability in diamond prices.
- Instructs Methods of Calculus to 45 undergraduate students while providing math and statistics assistance at the Math Learning Center.
- Assist faculty with grading assignments, quizzes, and exams of undergraduate students in Calculus courses using CANVAS inbuilt technology gradescope.
- Provided one-on-one mathematics and statistics support to students at the Math Learning Center, promoting academic success and confidence.

Actuarial Analyst – *StarLife Assurance – Accra, Ghana* October 2021 – July 2022

- Analyzed, cleaned, and modeled data for experience analysis. Findings revealed a 65% pricing and valuation-adjusted mortality rate and a 10% AIDS rate for fiscal year 2022, employing Python for data processing and visualization.
- Generated premium summaries by products, distribution channels, and regions. Found that 55% of premium revenue came from endowment products, leading to a 20% sales boost for those products.
- Employed Basys, an in-house actuarial software, to precisely analyze and calculate competitive premium rates for an innovative insurance product, resulting in a 12% increase in sales among market women.
- Utilized SQL queries to extract premium data and executed data cleaning, preprocessing, and analysis tasks with Excel, contributing to a 15% enhancement in data accuracy.