FRANCIS BOATENG

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WORK EXPERIENCE

Florida Atlantic University, Boca Raton, Florida — Aug 2022 – Present
Graduate Research and Teaching Assistant

- Under Dr. Li's supervision, I analyzed head circumference in pregnant women using multiple linear regression, achieving an 89.54% predictability with a low infant birth weight dataset.
- Under Dr. Chang's supervision, I conducted a survival analysis on a non-randomized clinical trial (Grana et al., 2002) for malignant glioma. Found novel radioimmunotherapy significantly improved patient survival.
- Instructs Methods of Calculus (MAC 2233-16B) course to 45 undergraduate students.
- Grades assignments and homework for over 40 undergraduate students while providing personalized support and fostering a supportive learning environment at the Math Learning Center, assisting students with math and statistics problems.

StarLife Assurance, Accra, Ghana — Oct 2021 – Jul 2022
Graduate Actuarial Trainee

- Reviewed, cleaned, transformed, and modeled the data to conduct an experience analysis. The results revealed that the adjusted mortality rate and AIDS rate for pricing and valuation purposes stood at 65% and 10%, respectively, for the fiscal year 2022.
- Utilized Basys, an in-house actuarial software, to accurately calculate a competitive premium rate for an innovative insurance product tailored to market women.
- Prepared data for assessing the company's actuarial liabilities and generated a premium summary by products, distribution channels, and regions, revealing that 55% of premium revenue stemmed from endowment products.

StarLife Assurance, Accra, Ghana — Aug 2019
Intern

- Automated data cleaning and manipulation process before uploading to actuarial software, Basys, for actuarial modeling.
- Collected, analyzed, and evaluated data of individuals who purchased insurance policies, while also creating, maintaining, validating, and reconciling exposure and claims data to be ready for analysis.

PROJECTS

Stroke Data Analysis with R-Shiny - GitHub

- Conducted an in-depth exploratory data analysis on a stroke dataset, developed a machine-learning model to predict stroke probabilities, and created an interactive R-Shiny app. The app consists of three tabs: the first tab displays descriptive statistics of the stroke dataset; the second tab allows users to create custom visualizations and make inferences based on the dataset; and the third tab utilizes a generalized linear model (GLM) to predict stroke occurrence. Click Here to try the app.

Time Series Analysis of US Monthly Unemployment Rates

- 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

- 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.

Data Analysis of Diamond Attributes: Cut, Carat, and Price -GitHub

- Analyzed intricate links among diamond qualities: cut, carat, and price. Utilized regression and visuals to unveil key trends. Results highlighted carat weight and cut's significance in pricing. The model's R-squared of 0.8565 showed 85.65% predictability in diamond prices via carat and cut.

Data Collection App for Clinical Trial - GitHub

- I created an R-Shiny app to collect participant data on sleep quality for a clinical trial, aiding in evaluating nutritional supplements' impact on sleep. Click Here to try the app.

EDUCATION

Florida Atlantic University, *Boca Raton, Florida* — Expected May 2024
Degree: Master of Science in Mathematics (Conc. in Biostatistics) — GPA: 3.833 / 4.0

Kwame Nkrumah University of Science and Technology, *Kumasi, Ghana* — Sep 2021
Degree: Bachelor of Science in Actuarial Science — CWA: 76.65 / 100

TECH SKILLS

Programming: R (dplyr, ggplot2, tidyr, caret, shiny, markdown), Python (NumPy, Pandas, Scikit-learn, Matplotlib), SAS, Minitab, PostgreSQL, MySQL, Big query.
Business Analytics: Business Intelligence, Statistical Analysis, Data Visualization, Data Cleaning, Tableau, Power BI.
Office Suite: Proficient in Microsoft Office Suite, especially Excel, including VBA, PowerPoint, and Word.