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IRENE A. MUGENI

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EDUCATION

CARNEGIE MELLON UNIVERSITY – TEPPER SCHOOL OF BUSINESS

Pittsburgh, PA

Master of Science in Business Analytics - MSBA

5/25

- Honors: 2nd place in business case competition
- Leadership & Roles: MSBA Program Admissions Ambassador; Member, Data and Analytics Club

GETTYSBURG COLLEGE

Gettysburg, PA

Bachelor of Arts in Economics, Minor in Business

5/21

- Honors: SHE-CAN scholar and Gettysburg College grant recipient
- Leadership & Roles: Leadership Mentor (Garthwait Leadership Center); Member, Economics Club

EXPERIENCE

SCHMIDT MARKET RESEARCH

Pittsburgh, PA

Market Research Analyst

7/21 – 5/24

- **Modeling:** Applied K-Means clustering and logistic regression in R to build and validate a customer segmentation model for personalized targeting, improving campaign CTR by 20%
- **Analytics:** Analyzed 500,000+ credit accounts to identify refinance triggers and default risk factors, supporting underwriting strategy for a national banking client
- **Data Engineering:** Analyzed large-scale satisfaction data using ETL processes and SQL to identify key attrition drivers and provided data-driven insights to inform targeted retention strategies, reducing customer churn by 15%

MINISTRY OF FINANCE AND ECONOMIC PLANNING

Kigali, Rwanda

Research and Modeling Summer Analyst

6/19 – 8/19

- **Data Analysis:** Compiled, cleaned, and analyzed granular consumer and business data and identified forward-looking economic output indicators, supporting generation of GDP nowcasts and forecasts.
- **Time Series Modeling:** Utilized time-series ML algorithms, including distributed lag models and ARIMA, in Stata to assess changes in dependencies of macroeconomic data and to model outcomes of economic scenarios
- **Communication:** Co-wrote and co-edited the Ministry's official quarterly economic report with senior economists; the report was used to brief cabinet leaders on GDP trends and inform short-term fiscal planning

PROJECT EXPERIENCE

ROYAL BANK OF CANADA (*Tepper MSBA Class Capstone Project*)

Pittsburgh, PA

Project Team Member & Research lead/Model Developer

1/25 – 5/25

- **Natural Language Processing:** Built a sentiment analysis pipeline in Python for 10,000+ tweets and performed topic modeling using LDA, uncovering client behavior signals related to intergenerational wealth transfer
- **Financial Modeling:** Built financial model to identify customer pain points and evaluate marketing campaign ROI and CLV, uncovering opportunities projected to drive \$157M–\$500M in ROI through improved targeting strategies
- **Data Visualization:** Created Tableau dashboard to visualize performance across engagement strategies, enabling stakeholders to compare ROI outcomes and prioritize high-performing client segments

CARNEGIE MELLON UNIVERSITY (*Coursework*)

Pittsburgh, PA

Lending Club Risk & Return Modeling

1/25 – 3/25

- **Machine Learning:** Built logistic regression and random forest classifiers to predict loan defaults (AUC ~0.80) and used Ridge and Random Forest regressors, including two-stage models, to estimate loan-level ROI while accounting for default risk
- **Optimization:** Applied Gurobi to simulate investment strategies (profit-maximizing, budget-constrained, and risk-adjusted), improving average portfolio ROI from 2.6% (random baseline) to 3.3% with optimized strategies
- **Model Validation:** Stress-tested strategy performance across return definitions and economic assumptions (e.g., pessimistic vs. optimistic), confirming robustness of the two-stage risk-return approach

ADDITIONAL INFORMATION

Certification: Bloomberg Market Concepts – Bloomberg, 2025

Languages & Tools: Python, R, SQL, Tableau, Power BI, Excel, MATLAB, Stata, SPSS, C++, Gurobi