RABIE RAMADAN

6957 N Greenview Ave, Apt 3B, Chicago IL, 60626

Personal Website ◇ rabie.ramadan25@gmail.com ◇ (215) 824-5071 ◇ LinkedIn Profile

CAREER PROFILE

Senior data scientist and researcher with 1 year experience in the insurance industry and 7+ years experience in mathematical modeling, calibration, validation and machine learning. Analyzed more than 1 TB of real-world data (using SQL, Excel & Tableau), built more than 10 unique scenario simulations (using MATLAB), and developed more than 5 predictive machine learning models (using Python & R).

Graduated with a Ph.D. in Mathematics, a B.E. in Civil & Environmental Engineering, a B.Sc. in Applied Mathematics, and a minor in Operations Research.

Core competencies include optimization, programming, numerical methods, model development, data fitting and visualization.

EDUCATION

Temple University | *Philadelphia, PA* *August 2014 — May 2020*
PhD in Mathematics (Thesis in Applied Math)
Thesis Title: Non-equilibrium Dynamics of Second Order Traffic Models

American University of Beirut | *Beirut, Lebanon* *August 2009 — May 2014*
Bachelor of Engineering in Civil & Environmental Engineering
Bachelor of Science in Applied Mathematics, Minor in Operations Research

RELEVANT EXPERIENCE

Legal & General America | **Senior Data Scientist** | *Remote* *September 2021 — present*

- Work closely with stakeholders to help minimize cost and drive up sales through the development of machine learning models that improve the instant issue rate of life insurance policies
- Build and monitor the performance of machine learning models for predicting fraud and applicant non-disclosure of health conditions
- Build machine learning models for predicting the best vendors to pursue for each applicant's electronic health records
- Quantify the "protective value" of each step of the application process, which is used as a response variable in other predictive models that aim to shorten underwriting time
- Build ensemble and financial optimization models that ingest the output of other predictive models and combines them into one optimal score to drive flexibility in decision making
- Help IT and data engineers in deploying the developed machine learning models into production

Temple University | **Research Assistant Professor** | *Philadelphia, PA* *June 2020 — July 2021*

- Collaborated with researchers from seven academic institutions spanning fields such as engineering, machine learning and mathematics, and industry partners (Toyota and GM) on the CIRCLES project
- Took a leadership role on the CIRCLES project by completing progress reports, serving as a representative for the energy team, and presenting the team's findings to collaborators
- Built and validated time-instantaneous energy consumption models by fitting real-world measurements in MATLAB and Excel for 8 vehicle classes (various sizes of internal combustion engine and electric cars and trucks)
- Designed a pipeline in MATLAB (equipped with a genetic algorithm) that extracts a piece-wise linear road grade function with free nodes from GPS elevation data
- Developed calibration procedures using Python to fit the parameters of macroscopic and microscopic traffic models to aggregated sensor data as well as vehicle and camera data

- Advised the Reinforcement Learning team on the design of an objective function that incorporates financial and environmental impacts in addition to throughput
- Mentored an undergraduate student and a graduate student on their ongoing research

MIT | **Visiting Researcher** | *Boston, MA* *May 2019 — June 2019*

- Derived a reduced linear model for weak solutions of second order non-linear macroscopic traffic models
- Developed numerical methods to implement, analyze and visualize the derived model in MATLAB
- Published project results in a Springer special edition book, and presented the findings at a numerical analysis conference

Temple University | **Instructor & Researcher** | *Philadelphia, PA* *August 2015 — May 2020*

- Taught Pre-Calculus, Calculus I, Calculus II, Advanced Calculus, Real Analysis and Complex Analysis
- Mentored first-year graduate students and helped them prepare for the Complex Analysis qualifying exam
- Communicated complex ideas and worked with students in groups of 5–100 and from a variety of backgrounds
- Built traffic simulations from partial differential equation models, and used the simulations to analyze the models' structure

University of Texas | **Research Assistant** | *Austin, TX* *June 2013 — August 2013*

- Used a digital image correlation system, scripted in MATLAB, to monitor surface strains on steel bars
- Participated in constructing reinforced concrete columns and conducting seismic performance tests
- Learned to thrive in a collaborative, exceptionally organized and tightly scheduled laboratory

AWARDS, FUNDING AND FELLOWSHIPS

Doctoral Dissertation Completion Grant *January 2020*

CST Outstanding Teaching Award *December 2019*

Temple University Presidential Fellowship *August 2014*

American University of Beirut Full Scholarship *August 2009*

SKILLS

Languages English, Arabic

Technical Statistics, Machine learning, Data analytics and visualization, Mathematical modeling, Control theory

Software Python, R, SQL, Excel (with VBA), JavaScript, MATLAB, LaTeX, Tableau, HTML/CSS, Word, PowerPoint