Furkan Danisman

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Education

Bachelor of Science in Statistics 01/2023 – 05/2024
York University — First Class With Distinction — ***GPA: 3.76/4*** *Toronto, Canada*

Bachelor of Arts and Sciences in Statistics 09/2019 – 01/2023
Middle East Technical University — Transferred to York University *Ankara, Turkey*

Skills

• **Python** (Scikit-learn, Matplotlib, PyTorch) • **R** (tidyverse, ggplot2, dplyr, tidyr, randomForest) • **PostgreSQL**

Work Experience

Research Assistant | ***Python & SQL*** 01/2025 – Present
Bank of Canada *Ottawa, Canada*
- Working on cyrptocurrency lending platform and LLM application in economics.

Research Associate | ***R*** 05/2024 – 02/2025
York University *Toronto, Canada*
- Developing an adjusted log-concave density estimation algorithm to improve estimation accuracy and provide a robust way to handle grouped data across a range of applications.
- Providing theoretical proofs for convergence and exploring the EM algorithm behavior.
- Creating a software package integrating numerical and visualization tools for grouped data analysis.
- Aiding in writing publication.

Research-Boursier | ***R*** 03/2024 – 10/2024
The Scientific and Technological Research Council of Turkey *Ankara, Turkey*
- Developed a two-phase model to predict long-term breast cancer risks in women at Turkish hospitals.
- Communicated exploratory data analysis (spaghetti plots, heatmaps) findings to medical professionals.
- Introducing a novel power study simulation method for ordinal longitudinal data into statistical software.

Teaching Assistant 01/2024 – 05/2024
York University *Toronto, Canada*
- Graded exams and assignments for Differential Calculus with Applications and Applied Calculus courses.
- Provided explicit feedback to students and instructor.

Intern Data Scientist | ***R & Excel*** 06/2022 – 09/2022
Rotamopt - (Startup) *Ankara, Turkey*
- Collected and analyzed road data, optimizing road trial algorithms for performance improvement.
- Conducted competitor analysis and presented actionable insights for strategic decision-making.

Publications

[1] Danisman, F., Kilic, S.I., Amini, N., Ada, O.O., Aktas, S.G., Sarul, G. (2023). *METU students' college life satisfaction*, *International Journal of Social Science Research and Review*, 6(7), 12-37, https://doi.org/10.47814/ijssrr.v6i7.1261.

Working Papers

[1] Co-Author. (Hanna Jankowski, Camila P. E. de Souza, Furkan Danisman). (2025). Density estimation for grouped data using an adjusted log-concave density estimation algorithm.

[2] Co-Author. (Zeynep Isil Kalaylioglu, Furkan Danisman, Lutfi Dogan). (2024). A Parameter to Consider for Breast Cancer Risk: Rate of Change in Breast Density. *BMC Surgery. Submitted.*

[3] Co-Author. (Zeynep Isil Kalaylioglu, Furkan Danisman, Zarina Oflaz). (2025). Data Augmentation for Disease Progression Analysis with Latent Markov Model.

[4] Co-Author. (Furkan Danisman, Enes Erul). (2025). Perceptions, Attitudes, and Concerns on Artificial Intelligence Applications in Patients with Cancer.

Volunteering

Research Assistant — STEM Competition Jan 2024 – May 2024

York University *Toronto, Canada*

- Developed a two-stage machine learning algorithm to mitigate localization errors in GNSS data.
- Improved accuracy of outlier detection compared to traditional methods, reducing computation time from 1 minute to 30 seconds.
- Presented our findings through a poster to a non-technical audience.

Student Assistant Dec 2022 – Jan 2023

Middle East Technical University *Ankara, Turkey*

- Conducted in-person office hours for Mathematical Statistics-I.
- Delivered lectures and assisted students during office hours.
- Successfully managed a significant number of participants, comparable to lecture attendance.

Projects

SSC 2025 - Case Study | *Python - R*

- Case study for prediction of new onset atrial fibrillation using routinely reported 12-lead ECG variables and electronic health data.
- Planning to implement a semi-parametric model. We are at the first stages of the study.

Traumatic Brain Injury | *R*

- Studied post-traumatic brain injury patients to explore the impact on the volume of the left hippocampus (cognitive recovery).
- Used a Non-Linear Mixed Model to analyze the relationship of the left hippocampus with demographic and tissue data.
- Found that males experience a faster rate of decline in hippocampus volume compared to females after injury.
- Detected a significant relationship between gray matter and hippocampus volume, suggesting that language and memory functions are also greatly affected.

Optimization Methods | *R*

- Compared Newton-Raphson, Basic Monte Carlo, and Simulated Annealing optimization methods.
- Found Simulated Annealing to be the most robust through a simulation study.

Soccer World Cup 2022 Data Analysis | *R*

- Scraped and analyzed World Cup statistics to conduct exploratory data analysis.
- Used Monte Carlo simulations to predict outcomes for standings and scores.
- Visualized player performance metrics and calculated expected goals.

Airbnb Market Analysis | *RShiny*

- Developed an interactive web application to analyze Airbnb market dynamics in Amsterdam.
- Created an interactive map of Amsterdam, allowing users to filter and visualize room prices based on selected criteria.

Hobbies

- Reading and listening podcasts about psychology, philosophy, and history.
- Soccer, martial arts, and gym.