Gabriel Moryoussef

PhD Student in Statistics at CMU

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Education

Carnegie Mellon University — *Pittsburgh, USA*

Doctorate (PhD) in Statistics and Machine Learning — *Aug. 2022 - July. 2026 (Expected)*

- Advisor: Jiashun Jin
- TA: 46-925 - Financial Data Science III
- TA: 36-402 - Advanced Methods in Data Analysis
- TA: 46-924 Natural Language Processing (for the M.S. in Computational Finance program)
- TA: 46-926 Statistics and Machine Learning (for the M.S. in Computational Finance program)

Ecole Normale Supérieure Paris-Saclay — *Paris, FR*

Master (MSc) in Machine Learning, Mathematics-Vision-Apprentissage (MVA) — *Oct. 2021 - Aug. 2022*

University of Oxford — *Oxford, UK*

Master (MSc) in Mathematical Science (OMMS) — *Oct. 2020 - Jun. 2021*

- Thesis: "Persistent Homology of Knotted Proteins", Supervisors: Ulrike Tilmann, Heather Harrington, Agnese Barbensi

Imperial College London — *London, UK*

Bachelor (BSc) in Mathematics — *Oct. 2017 - Jun. 2020*

- First Year Research Project: "Study of the dirichlet eigenvalues on the rectangle" (89%)
- Second Year Research Project: "Filters and their applications" (83%)

Publications

[1] K. Benjamin, L. Mukta, **G. Moryoussef**, C. Uren, H. A. Harrington, U. Tillmann, and A. Barbensi, "Homology of homologous knotted proteins," ***Journal of the Royal Society Interface***, **2023**, [paper].

[2] J. Jin, T. Ke, **G. Moryoussef**, J. Tang, and J. Wang, "Improved algorithm and bounds for successive projection," ***ICLR***, **2024**, [paper].

[3] J. Jin, T. Ke, and **G. Moryoussef**, "When machines write: Statistical approaches to ai text detection," ***Submitted to ICML***, **2025**.

Skills

Programming Python, Fortran, Matlab, R, SQL, Unix, Pytorch, Pandas, Git

Experience

Amazon — *Boston, US*

Applied Scientist Intern — *May. 2024 - Aug. 2024*

- Manager: Bill Campbell
- Multi-step reasoning and planning with LLM's

EMBL-EBI — *Cambridge, UK*

Research Scientist Intern — *Apr. 2022 - Aug. 2022*

- Studied elastic shape analysis of parametric curve in a data driven approach
- Learned a Shape Space using a Variational Auto-Encoder (VAE) that resulted in a cluster accuracy of 89%
- Improved the previous learned embedding by adding a contrastive loss
- Maintained the code clean and documented by committing regularly on the project's Github repository

Jedha bootcamp — *Paris, FR*

Deep Learning Instructor — *Jul. 2022 - Aug. 2022*

- Taught the deep learning and data analytics modules of the Jedha bootcamp Fullstack
- Explained challenging concepts such as CNN, LSTM, RNN, Transformers

University of Oxford — *Oxford, UK*

Research Assistant — *Jun. 2021 - Oct. 2021*

- Conducted research among three fellow classmates under the guidance of Pr. Ulrike Tillmann
- Explored structural and geometrical properties of proteins using Persistent Homology, a tool from Topological Data Analysis

Extracurricular Activity

Other learning experiences

- **Parimaths**: Lectures at ENS Ulm every weekend for 2 years to prepare for Olympiads