Émile Esmaili

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Education

Columbia University New York, NY
M.A. in Applied Statistics & Data Science (QMSS)

Sorbonne Université (Pierre et Marie Curie - Paris VI) Paris, France
BSc. in Mathematics

PSL Research University (Paris-Dauphine) Paris, France
MSc. in Financial Engineering - BSc. in Economics

Research Experience

Columbia University & NASA Goddard Institute for Space Studies New York, NY
Research Assistant *Jan 2024 - June 2025*

- Research staff at the Center for Climate Systems Research supervised by Prof. Michael Puma. and Prof. Andrew Robertson
- Topic 1: Modeling the impact of climate and famines on food prices using Bayesian inference and causal graph learning
- Topic 2: Deep learning post-processing of sub-seasonal rainfall predictions

Columbia University & NASA Goddard Institute for Space Studies New York, NY
Research Intern *Sep 2022 - Dec 2023*

- Graduate research assistant at NASA GISS and Columbia University's Department of Earth and Environmental Engineering, jointly supervised by Prof. Upmanu Lall and Dr. Michael Puma.
- Topic: Using hierarchical Bayesian models and Hidden Markov Models to explore the driving factors of global migration and develop improved probabilistic projections of bilateral migration flows

Memorial Sloan Kettering Cancer Center & Columbia University New York, NY
Practicum Data Scientist (Capstone Project) *Jan 2023 – May 2023*

- Researched drivers of lower grade brain glioma using machine learning and survival models
- Worked on an image segmentation model for IHC staining based on MSK's proprietary DeepLIIF model

Conference Papers

- **Modeling Human Migration with Non-Homogeneous Hidden Markov Models: an Application to Inter-state Mobility in the United States**, Emile Esmaili, Upmanu Lall, Michael J.Puma, Aric Cutuli, Rachata Muneepeerakul. AGU Fall Meeting 2023
- **A Bayesian Hierarchical Framework for Modeling Migration Flows**, Aric Cutuli, Upmanu Lall, Michael J. Puma, Emile Esmaili, Rachata Muneepeerakul. AGU Fall Meeting 2023

Teaching Experience

Columbia University New York, NY
Teaching Assistant - Machine Learning for the Social Sciences (GR5073) *Sep 2023 – Dec 2023*

- Held weekly recitations and office hours covering the basics of machine learning and graded homeworks

Columbia University New York, NY
Teaching Assistant - Projects in Advanced Machine Learning (GR5074) *Jan 2023 – May 2023*

- Held weekly recitations and office hours covering the basics of applied deep learning and graded homeworks

Work Experience

Ekimetrics Paris, France
Data Scientist *Sep 2021 – May 2022*

- Developed a web-app prototype from scratch that incorporates natural language processing (NLP) tools to detect investment opportunities

Skills

Programming: Python, MATLAB, R

Frameworks: PyTorch, Keras, Scikit-learn, CVX, PyMC, Git

Natural Languages: French (Native), Farsi (Native), English (Professional), German (Elementary)