

Émile Esmaili

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EDUCATION

Columbia University <i>M.A. in Applied Statistics & Data Science (QMSS)</i>	New York, NY Dec 2023
Sorbonne Université (Pierre et Marie Curie - Paris VI) <i>BSc. in Mathematics</i>	Paris, France June 2024
PSL Research University (Paris-Dauphine) <i>MSc. in Financial Engineering - BSc. in Economics</i>	Paris, France Sept 2020

RESEARCH EXPERIENCE

Columbia University & NASA Goddard Institute for Space Studies <i>Research Assistant</i>	New York, NY Jan 2024 - Aug 2024
<ul style="list-style-type: none">Research staff at the Center for Climate Systems Research supervised by Dr. Michael Puma.Topic: studying the impact of fishing resources during extreme climate and famine events	
Columbia University & NASA Goddard Institute for Space Studies <i>Research Intern</i>	New York, NY Sep 2022 - Dec 2023
<ul style="list-style-type: none">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 <i>Practicum Data Scientist (Capstone Project)</i>	New York, NY Jan 2023 - May 2023
<ul style="list-style-type: none">Researched drivers of lower grade brain glioma using machine learning and survival modelsWorked 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 <i>Teaching Assistant - Machine Learning for the Social Sciences (GR5073)</i>	New York, NY Sep 2023 - Dec 2023
<ul style="list-style-type: none">Held weekly recitations and office hours covering the basics of machine learning and graded homeworks	
Columbia University <i>Teaching Assistant - Projects in Advanced Machine Learning (GR5074)</i>	New York, NY Jan 2023 - May 2023
<ul style="list-style-type: none">Held weekly recitations and office hours covering the basics of applied deep learning and graded homeworks	

WORK EXPERIENCE

Ekimetrics <i>Data Scientist</i>	Paris, France Sep 2021 - May 2022
<ul style="list-style-type: none">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)

RELEVANT COURSEWORK

Analysis: Topology, Functional Analysis, Complex Analysis, Measure Theory, Differential Manifolds

Algebra: Linear & Bilinear Algebra, Abstract Algebra

Applied Mathematics: Convex Optimization, Differential Equations, Numerical Analysis

Other: Number Theory, Graph Theory & Combinatorics; Axiomatic Set Theory

Machine/Deep Learning: Deep Learning for Computer Vision, Reinforcement Learning, Speech Recognition

Probability & Statistics: Probability Theory, Statistics, Econometrics, Stochastic Calculus