Anas Mourahib

Postdoctoral Researcher in Statistics

Personal information

Date of birth	30/08/1998
Place of birth	Kenitra, Morocco
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Education

2021–2025	**PhD in Statistics**, *Université catholique de Louvain (UCLouvain)*, Belgium
	Title of thesis: Multivariate threshold exceedances approach in the presence of multiple extreme directions and applications. Supervised by Prof. Anna Kiriliouk and Prof. Johan Segers.
2020–2021	**Master's in Mathematics, Probability and Statistics**, *Université Rennes 1*, France.
2019–2020	**Maîtrise in Fundamental Mathematics**, *Université Grenoble Alpes*, France.
2016–2019	**Bachelor's in Mathematics**, *Université Ibn Tofail*, Morocco.

Professional experience

2025–present	**Postdoctoral Researcher in Statistics**, *Eindhoven University of Technology*, Netherlands
	Research on causality, extreme value theory, and graphical models, with methodological contributions in machine learning and neural networks, including applied work. Teaching and supervision of graduate students.
2021–present	**Researcher & Teaching assistant**, *Institute of Statistics, Biostatistics and Actuarial Sciences (ISBA)*, UCLouvain, Belgium.

Research Interests

- Statistical machine learning
- Extreme value theory and its applications to risk modeling
- Causal inference and identifiability

- Probabilistic and graphical models
- Applications in finance, hydrology, and weather-related risk

Publications

Published/ Accepted

2023–2024   Mourahib, Anas and Kiriliouk, Anna and Segers, Johan. Multivariate generalized Pareto distributions along extreme directions. *Extremes (2024): 1-34.*

Work in progress

2024–present   Mourahib, Anas and Kiriliouk, Anna and Segers, Johan. Estimating sparse extreme-value mixture models.

2024–present   Mourahib, Anas and Engelke, Sebastian and Segers, Johan. Extremal graphical models with non-standard extreme directions.

Selected Projects

2025–Present   **Root Cause Detection Project**: (Postdoctoral Research in collaboration with ASML): developing data-driven methods for identifying and diagnosing root causes in complex industrial systems; applying statistical learning, causal inference, and dependence modeling.

2025–2026   **Dependence Modeling Course Materials**: public GitHub repository with simulations and applied examples in R and Python, covering structure learning for undirected and directed graphical models, with emphasis on causal modeling. Code and simulation examples are available in a public repository: `https://github.com/AnasMourahib/Dependence-modeling-`.

2024-2025   **Penalized Least Squares Estimator for Extreme-Value Mixture Models**: public GitHub repository accompanying *Mourahib, Kiriliouk & Johan Segers (2025)*, with implementations in R, C, Python, and Julia. Code available at: `https://github.com/AnasMourahib/Penalized_least-squares_estimator`.

Honors and awards

2023   FNRS Grant for International Mobility

Research stays

February-May 2024   Research Center for Statistics, University of Geneva: collaboration with Prof. Sebastian Engelke.

Computer Skills

R	Strong expertise, reproducible workflows with RMarkdown; version control with Git/GitHub
Python	Strong expertise; Jupyter Notebooks, Git/GitHub; ML frameworks: scikit-learn, PyTorch, TensorFlow.
Julia	Strong expertise
C, C++	Strong expertise
LATEX	Working proficiency

Languages

Arabic	Native/bilingual proficiency
Dutch	Learning/in progress
English	Fluent/professional working proficiency
French	Fluent/professional working proficiency

References

Rui Pires da Silva Castro	Associate Professor of Statistics, Department of Mathematics and Computer Science, Eindhoven University of Technology. Email: r.m.pires.da.silva.castro@tue.nl
Anna Kiriliouk	Assistant Professor of Statistics, Institute of Statistics, Biostatistics and Actuarial Sciences (ISBA), UCLouvain, Belgium. Email: anna.kiriliouk@uclouvain.be
Johan Segers	Full Professor of Statistics, Department of Mathematics, KU Leuven, Belgium. Email: jjjsegers@kuleuven.be