Vacancy: 18-month full-time post-doctoral grant

X-vine models for multivariate extremes

In multivariate extreme-value theory, a question of high interest is the construction of tail dependence models that are flexible, parsimonious, and computationally tractable, and scale well as the dimension grows. Recently, Kiriliouk, Lee and Segers (2024) proposed a novel modelling framework based on regular vine tree sequences called *X-vines*. These models can easily be built in arbitrary dimensions by combining bivariate components only, grouping them in trees. For copula-based dependence modelling, vine constructions have grown into a versatile and widely applied approach.

The Institute of Statistics, Biostatistics and Actuarial Sciences (ISBA) of the UCLouvain is seeking a talented post-doctoral researcher to join us to develop methods for learning extremal dependence based on X-vines, with special attention for aspects relevant for applications in climate science, such as spatial data, clustering, and covariates. The post-doctoral grant is sponsored by the Belgian Fund for Scientific Research (F.R.S.–FNRS) and is part of the larger project *"Flexible statistical models for compound climate events"*.

We offer:

- a full-time post-doctoral grant at the UCLouvain for 18 months, starting between December 2025 and May 2026 (an extension is possible if both parties agree)
- a net salary of around 3000 euros/month
- travel opportunities for attending scientific conferences and doing research visits
- access to a high-performance scientific computing environment
- opportunities to gather experience in statistics teaching (only if you wish to do so)

We are looking for:

You are holding a PhD degree in statistics, mathematics, or a similar domain during which you gained a solid background in multivariate extreme-value theory. Experience with vine copulas, graphical models and/or climate-related applications is a plus. You have programming skills in, for instance, R and/or Python and you are fluent in English. To be eligible, your PhD defense must be at most 5 years ago at the beginning of the postdoctoral fellowship and you cannot have resided or carried out your main activity (job, studies…) in Belgium for more than 24 months during the last 3 years.

Contact: Please mail your CV, motivation letter, and PhD thesis (if already available) in pdf format to Anna Kiriliouk (anna.kiriliouk@uclouvain.be) with subject "UCLouvain postdoctoral job application" at your earliest convenience. Please also mention at least two references.