



## Vacancy: one-year 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 \(2023\)](#) proposed a novel approach based on regular vine tree sequences called *X-vines*. The proposed models can easily be built in arbitrary dimensions by combining bivariate components only, that are grouped in trees. For copula-based dependence modelling, vine constructions have grown into a versatile and widely applied approach. On the other hand, X-vines, which turn out to be the tail limits of regular vine copulas, are based on densities of exponent measures of multivariate extreme value distributions.

The Namur Institute for Complex Systems ([naXys](#)) at the [Université de Namur](#), in collaboration with the Institute of Statistics, Biostatistics and Actuarial Sciences ([ISBA](#)) of the [Université catholique de Louvain](#), is seeking a talented post-doctoral researcher to join us to further explore the world of X-vines. The post-doctoral grant is sponsored by the Belgian Fund for Scientific Research (F.R.S.–FNRS) and is part of the larger project “Learning structures and patterns from multivariate extremes”.

### We offer:

- a full-time post-doctoral grant at the University of Namur for 12 to 14 months, starting between September 1st and November 1st, 2024 (a one- or two-year extension is possible; to be decided after 6 months).
- a net salary of around 3100 euros/month (including social insurance and transportation to / from work)
- 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 (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, both from a theoretical and a practical point of view. Experience with vine copulas and/or graphical models 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 Johan Segers ([johan.segers@uclouvain.be](mailto:johan.segers@uclouvain.be)) and Anna Kiriliouk ([anna.kiriliouk@unamur.be](mailto:anna.kiriliouk@unamur.be)) with subject “Postdoctoral job application” at your earliest convenience. Please also mention at least two references that we may contact.