

Two-year postdoctoral position at ENSAI & CREST

A postdoctoral position in statistics is available as part of the recently awarded Brittany Region SAD grant

"MaEVA: *Machine learning and data mining of extreme values in massive data*"

The postdoctoral fellow will be based at ENSAI and the CREST lab in Rennes, France, and will be supervised by Gilles Stupfler and François Portier, jointly with Simone A. Padoan (Bocconi University).

Project description: The project will develop a methodology grounded in rigorous theory for the statistical analysis of conditional extreme values of a univariate random variable (rainfall level, claim amount in insurance...) given auxiliary information of interest represented by a covariate (geographical location, claimant profile...) based on massive data. Here « massive » means that at least the sample size or the dimension of the covariate is very large (and possibly both). The first goal of the project is to develop a statistical framework for the inference and prediction of extreme conditional quantiles given massive data. A particular objective will be to investigate rigorous theory (asymptotic and non-asymptotic) for penalized extreme quantile regression. The second goal of the project is the extension of the developed methodology to the estimation of other risk measures at extreme levels, such as expectiles or the Expected Shortfall, in order to provide a comprehensive picture of risk in a given context. The methods will be implemented in open source code and will be applied to real sets of massive data in environmental science and finance.

Qualifications and eligibility: The project will use cutting-edge tools in extreme value analysis, computational statistics and machine learning. The candidate should therefore hold a PhD degree in probability or statistics and have an emerging track record of high-quality publications and data analysis, and it is expected that the candidate will have expertise in either extreme value analysis and/or high-dimensional data analysis. Substantial experience with R, Python or C is necessary. **Eligibility of any candidate is contingent upon having spent at least 18 months working abroad between 1st May 2018 and the starting date of the contract.**

Duration, salary and benefits: The position is due to start between 1st September 2022 and 1st January 2023, for a maximal duration of 24 months. Monthly net salary is approximately €2,750. Substantial funding is available for equipment, travel and expenses.

Application procedure: Please provide a full academic CV and a cover letter, in which you will in particular mention whether you are legally able to work in France. Applications will be reviewed as they are received. We especially welcome and encourage applications from women, people part of ethnic/religious minorities, people with disabilities, and LGBTQ colleagues. The selected candidates will be interviewed via videoconference.

Applications and enquiries should be made by email at gilles.stupfler@ensai.fr and francois.portier@ensai.fr.

This position is open until filled.