

Nonparametric estimation of the Pickands dependence function using Bernstein polynomials

Philippe Naveau^{*}

Philippe.Naveau@lsce.ipsl.fr

Many applications require the estimation of the dependence of high-dimensional extreme events. A way to do this is by estimating the so-called Pickands dependence function. While the advantage of a nonparametric approach is the flexibility in capturing the dependence, in high dimensions, i.e., greater than 2, the estimation is a challenging task. In this talk, I will propose a nonparametric approach for estimating the Pickands dependence function, consisting of the Bernstein polynomials representation of a new multivariate nonparametric estimator. I will discuss the properties of the proposed estimation method and illustrate its performance with a simulation study. I will show the applicability of this framework in high-dimensional problems, analyzing the 7-dimensional dependence structure of heavy rainfall in France.

This talk is based on joint work with G. Marcon and S.A. Padoan.

^{*}LSCE CNRS, CEA-Orme des Merisiers, Orme des Merisiers / Bat. 701 C.E. Saclay, 91191 Gif-sur-Yvette Cedex, FRANCE.