

Extrema of high dimensional data

Thursday, 4 August 2022 14:00 (20 minutes)

In this talk we present a method to determine the directions of multivariate extremes. Therefore the concept of sparse regular variation of Meyer and Wintenberger (2021b) is introduced. In contrast to regular variation the limit measure in the definition of sparse regular variation is more sparse. The limit measure is called spectral measure and models the dependence in extremes. Sparse regular variation is based on an Euclidean projection onto the simplex and allows the categorization of extremes with respect to the cones of the simplex. The support of the spectral measure is determined by finding components in the data which are very large, while all other components are small. This is done by categorization of extremes to cones of the simplex and fitting a multinomial model to the number of extremes in the different cones (Meyer and Wintenberger (2021a)). For estimating the number of extremal cones we derive some information criteria, e.g. AIC (Meyer and Wintenberger (2021a)).

References:

Meyer, N. and O. Wintenberger (2021a). "Multivariate sparse clustering for extremes". In: arXiv: 2007.11848 [math.ST].

Meyer, N. and O. Wintenberger (2021b). "Sparse regular variation". In: Advances in Applied Probability 53(4), pp. 1115-1148.

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Session Classification: Session B4 Statistics

Track Classification: Statistics