POLITECNICO DI TORINO

DISMA Dipartimento di Scienze Matematiche G. L. Lagrange
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Politecnico di Torino, DISMA, Aula Buzano (third floor)

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New Advances on Records

Prof. Enrico Bibbona introduces the seminar

Abstract

Extreme Value Theory consists of creating models to describe events with potentially disruptive impacts. This theory has grown in importance in the last decades, and its methods are used in a vast variety of fields. Extreme values are undoubtedly scarce; therefore a robust mathematical foundation is needed to generate extreme value models, which involve asymptotic arguments. In the field of extreme values, record values have always represented a very appealing topic. We are all interested in records: breaking a record in the Olympic games can bring an athlete to world fame, while a negative record in stock market indices can lead to a severe economic crisis.
In the univariate case, the commonly employed definition of record is the largest random variable in a set of random variables. Several results on univariate records already exist under the condition that the position of a record in the sequence of records is known. Contrary to that, during this seminar, the focus will be on the case in which the position is unknown; small-sample and large-sample results are derived for the joint distribution of two and three records.
Under the same framework, Dr Khorrami and coauthors are extensively studying records over strictly stationary (dependent) Gaussian processes. They started by computing the probability that a record takes place and its distribution function. Then, they extended their univariate results by computing the joint distributions of two records and of two complete records, i.e. random variables whose components are record themselves in the univariate sense. They also provide the asymptotic distribution of a record in the case of a general strictly stationary stochastic process.

Biography

Amir Khorrami is a PhD student in Statistics at the Università Bocconi. He obtained his master in Mathematical Engineering at the Politecnico di Torino in 2014. His interests concern Extreme Value Theory, with particular focus on maxima over stationary processes. His doctoral thesis provides a deep study of Records Theory