



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI SCIENZE STATISTICHE
"PAOLO FORTUNATI"

Statistics-Economics Seminars 2023

Giovedì 18 maggio 2023 alle ore 15.00

Sia in presenza, presso l'aula III nello stabile dove ha sede il Dipartimento di Scienze Statistiche, a Bologna, in via Belle Arti n. 41, sia in modalità telematica, mediante sistema di videoconferenza su piattaforma Microsoft Teams

“Statistical Learning of Multivariate Extremes”

Prof. Richard Davis

(Columbia University)

Abstract

In this talk, a spectral clustering algorithm for analyzing the dependence structure of multivariate extremes is proposed. This work studies the theoretical performance of spectral clustering based on a random k -nearest neighbor graph constructed from an extremal sample, i.e., the angular part of random vectors for which the radius exceeds a large threshold. In particular, we derive the asymptotic distribution of extremes arising from a linear factor model and prove that, under certain conditions, spectral clustering can consistently identify the clusters of extremes arising in this model. Leveraging this result we propose a simple consistent estimation strategy for learning the angular measure. Our theoretical findings are complemented with numerical experiments illustrating the finite sample performance of our methods. An application to environmental extremes will also be given. (This is joint work with Marco Avella Medina and Gennady Samorodnitsky.)

Gli Organizzatori
Prof.ssa Alessandra Luati
Prof. Giuseppe Cavaliere

Il Direttore
Prof. Carlo Trivisano

La S.V. è invitata

Direzione