Institut für
Mathematische Stochastik

Georg–August–Universität

Einladung

Im Stochastik-Kolloquium spricht:

Prof. Dr. Arnak Dalalyan

(ENSAE-CREST, Palaiseau)

über das Thema:

Outlier-robust estimation using ℓ1-penalized Huber's M-estimator

Der Vortrag findet statt am:

Mittwoch, 22.1.2020 um 11:15 Uhr

im: Seminarraum der Stochastik, SR 5.101, Goldschmidtstr. 7

Es laden ein: Die Dozenten des Instituts für Mathematische Stochastik

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Abstract

We study the problem of estimating a p-dimensional s-sparse vector in a linear model with Gaussian design and additive noise. In the case where the labels are contaminated by at most k adversarial outliers, we prove that the ℓ1-penalized Huber's M-estimator based on n samples attains the optimal rate of convergence (s/n)1/2+(k/n), up to a logarithmic factor. For more general design matrices, our results highlight the importance of two properties: the transfer principle and the incoherence property. These properties with suitable constants are shown to yield the optimal rates, up to log-factors, of robust estimation with adversarial contamination.
(Joint work with Philip Thompson)