VolkswagenStiftung

Robust Risk Estimation

Initiative: Modellierung und Simulation komplexer Systeme (beendet)

Ausschreibung: Extremereignisse: Modellierung, Analyse und Vorhersage

Bewilligung: 03.02.2011

Laufzeit: 3 Jahre

Projekt-Website: http://www.mathematik.uni-kl.de/~wwwfm/RobustRiskEstimation/index.html

The project aims at a theoretical foundation, development and application of robust procedures for risk management for complex systems in the presence of extreme events, i.e. identification, quantification, prediction and control of these risks. The elaborated method is applied to chosen reference applications. The examples consist of operational risk of a bank, unit length of stay and cost in intensive care of a university clinic, and river discharge data of Austrian rivers. Suitable parametric models for these contexts are developed. The goal is to adapt the shrinking neighborhoods approach to determine optimally-robust estimators minimizing the maximal asymptotic risk on neighborhoods about the ideal model and at the same time resulting in a high breakdown point. Furthermore, corresponding diagnostic tools to quantify and visualize the influence and outlyingness of data are developped.

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