UNIVERSITÄT BERN

Philosophisch-naturwissenschaftliche Fakultät

Departement Mathematik und Statistik

Institut für mathematische Statistik und Versicherungslehre

Kolloquiumsvortrag in Statistik

Freitag, 08. Oktober 2021, 16.15 Uhr

Hörsaal -203, Alpeneggstrasse 22, 3012 Bern

Corona-Schutzmassnahmen:
Ab dem 20. September 2021 gilt Zertifikatspflicht für alle Aktivitäten, die im Rahmen der Universität Bern stattfinden, unabhängig von der Zahl der Teilnehmenden. Die Einhaltung der Zertifikatspflicht wird mittels Stichproben überprüft. In allen Gebäuden gilt eine generelle Maskenpflicht.

Silvana Pesenti, University of Toronto

Titel: Reverse Sensitivity Analysis for Risk Modelling

We consider the problem where a modeller conducts sensitivity analysis of a model consisting of random input factors, a corresponding random output of interest, and a baseline probability measure. The modeller seeks to understand how the model (the distribution of the input factors as well as the output) changes under a stress on the output's distribution. Specifically, for a stress on the output random variable, we derive the unique stressed distribution of the output that is closest in the Wasserstein distance to the baseline output's distribution and satisfies the stress. We further derive the stressed model, including the stressed distribution of the inputs, which can be calculated in a numerically efficient way from a set of baseline Monte Carlo samples.
The proposed reverse sensitivity analysis framework is model-free and allows for stresses on the output such as (a) the mean and variance, (b) any distortion risk measure including the Value-at-Risk and Expected-Shortfall, and (c) expected utility type constraints, thus making the reverse sensitivity analysis framework suitable for risk models.

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