RUPRECHT-KARLS-UNIVERSITÄT HEIDELBERG
THE MATHEMATICS CENTER HEIDELBERG (MATCH)
COORDINATION OFFICE

VORTRAGSANKÜNDIGUNG

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"Recent Developments Connecting Statistics and Stochastic Optimization "

Abstract: Problems of optimization are typically set up with decision variables that effect quantities which need to be minimized or kept below desired thresholds. However, when those quantities, as generalized "costs", are random variables with outcomes not known until later, there is no clear answer to what optimization should mean. Decisions in the present can only shape the probability distribution of the future "costs", not pin them down to specific values. Preferences in terms of so-called measures of risk need to be articulated then in order to come up with a sensible formulation.

All this plays into important issues of how the random "costs" should be treated statistically, for instance in estimating them from data bases or factor models. It appears that close attention should be paid to tuning the statistical tools, like error expressions in regression, to the objectives and constraints selected in the optimization formulation. This could promote better use of the extensive data bases used in applications in reliable design in engineering, among other areas.

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