

VORträge zum Operations Research

Kolloquium des Instituts für Operations Research

Zeit: Montag, 16. April 2018, 16:15 Uhr
Ort: Raum 320, Gebäude 09.21
Es spricht: Dr. Klaus Herrmann, Waterloo University
Zum Thema: **Multivariate Geometric Expectiles**

Abstract: This talk focuses on multivariate risk measures. Specifically, we introduce a generalization of expectiles for d -dimensional multivariate distribution functions. In the univariate case, expectiles are defined in terms of asymmetric square loss minimization and have recently attracted attention as risk measures. Our generalization is based on geometric quantiles introduced in Chaudhuri (1996). The resulting geometric expectiles are unique solutions to a convex risk minimization problem and are given by d -dimensional vectors. We discuss their behaviour under common data transformations such as translations, scaling and rotations of the underlying data. Geometric expectiles also obey symmetry properties comparable to the univariate case. We furthermore discuss elicibility in the context of geometric expectiles and multivariate risk measures in general. We show that a consistent estimator is readily available by the sample version. Finally, we exemplify the usage of geometric expectiles as risk measures in a number of multivariate settings, highlighting the influence of varying margins and dependence structures.

References

- Chaudhuri, P. (1996). On a geometric notion of quantiles for multivariate data. *Journal of the American Statistical Association*, 91(434):862–872.
- Herrmann, K., Hofert, M., Mailhot, M. (2018). Multivariate geometric expectiles. *Scandinavian Actuarial Journal*, 1–31.

Die Vorträge zum Operations Research wenden sich an alle Interessierten!

Bei Rückfragen wenden Sie sich bitte an:
Prof. Dr. Oliver Grothe, Institut für Operations Research.