UBC/PIMS Mathematical Sciences Young Faculy Award

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Linking representations for multivariate extremes via a limit set.

ABSTRACT:
The study of multivariate extremes is dominated by multivariate regular variation, although it is well known that this approach does not provide adequate distinction between random vectors whose components are not always simultaneously large. Various alternative dependence measures and representations have been proposed, with the most well-known being hidden regular variation and the conditional extreme value model. These varying depictions of extremal dependence arise through consideration of different parts of the multivariate domain, and particularly exploring what happens when extremes of one variable may grow at different rates to other variables. Thus far, these alternative representations have come from distinct sources and links between them are limited. In this work we elucidate many of the relevant connections through a geometrical approach. In particular, the shape of the limit set of scaled sample clouds in light-tailed margins is shown to provide a description of several different extremal dependence representations.

ABOUT THE UBC/PIMS MATHEMATICAL SCIENCES YOUNG FACULY AWARD:
This prize was created by two founding donors, Anton Kuipers and Darrell Duffie, to recognize UBC researchers for their leading-edge work in mathematics or its applications in the sciences.

SPEAKER BIORGAPHY:
Dr. Natalia Nolde, is the recipient of the 2021 UBC - PIMS Mathematical Sciences Young Faculty Award. Dr. Nolde is currently an Associate Professor in the Department of Statistics at the University of British Columbia. She obtained her PhD in Mathematics at ETH Zurich in 2010. Her research interests include probabilistic and statistical aspects of multivariate extreme value modelling including application to risk management in finance, insurance, hydrology and geoscience.

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