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FAKULTÄT
FÜR MATHEMATIK, INFORMATIK
UND NATURWISSENSCHAFTEN
Fachbereich Mathematik

Kolloquium über Mathematische Statistik und Stochastische Prozesse

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08.07.2025, 16:15 Uhr, Geom Hörsaal H5

Statistical learning viewpoints on extreme value analysis

Abstract:
Recent years have seen significant theoretical and methodological developments at the intersection of Extreme Value Analysis (EVA), machine learning, and statistical learning. In this talk, I will discuss recently introduced frameworks for supervised learning with extreme covariates.
I will also highlight key shared proof techniques, particularly those concerning the deviations of empirical processes indexed by low-probability classes. Time permitting, I will explain the connexion with other ML settings outside EVA such as imbalanced classification. The presentation will be primarily based on the following works:

- Clémençon, S., Jalalzai, H., Lhaut, S., Sabourin, A., & Segers, J. (2023). Concentration bounds for the empirical angular measure with statistical learning applications. Bernoulli, 29(4), 2797-2827.
- Huet, N., Clémençon, S., & Sabourin, A. (2023). On regression in extreme regions. arXiv preprint arXiv:2303.03084.
- Aghbalou, A., Bertail, P., Portier, F., & Sabourin, A. (2024). Cross-validation on extreme regions. Extremes, 27(4), 505-555.
- Aghbalou, A., Portier, F, & Sabourin, A. (2024) Sharp error bounds for imbalanced classification: how many examples in the minority class? Proceedings of AISTATS.

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