ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

Invitation to the Doctoral Seminar

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"An Interdisciplinary Journey from Defects to Storms: Data-Driven Extreme Value Models between Industry and Weather"

N.2.35 | Wednesday, 26 November 2025 | 10:00 a.m.

Abstract

In this talk, we (Michael Sandbichler and I) will first introduce Data Lab Hell, a research and technology organization operating at the intersection of applied mathematics, data science, and industrial research. Using the example of extreme value modeling, we demonstrate how mathematical modeling and data-driven methods interact across domains, from defect detection in industrial processes to the statistical analysis of precipitation extremes. Our focus will be on the collaboration with GeoSphere Austria, in which we develop data-driven extreme value models for analyzing precipitation events across multiple temporal scales. We will discuss both theoretical results on data-driven extreme value distributions and practical findings from atmospheric sciences. The presentation highlights how concepts from industrial anomaly detection have inspired new perspectives on rare events in atmospheric research.

Clemens Heuberger and the Department of Mathematics look forward to seeing you at the talk!