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GEOSPATIAL ANALYSIS AND KNOWLEDGE DISCOVERY:

COMPLEMENTARY PERSPECTIVES USING STATISTICAL AND MACHINE-LEARNING TECHNIQUES

Novel analysis and prediction methods developed at the intersection between computer science and statistics have been gaining popularity in recent years in quantitative (physical and human) geography and remote sensing. These newer approaches promise to improve predictive performances by overcoming the limitations of statistical models, and to better represent complex social and environmental processes. But are these novel approaches really “better” at discovering knowledge in or predicting outcomes from complex geospatial data - or do they find different types of needles in different kinds of haystacks? This talk highlights opportunities and pitfalls of novel computational techniques in different physical and human geographical applications, in particular the complementary interpretations provided by traditional and newer approaches.

Alexander Brenning is an Associate Professor in Geomatics at the University of Waterloo. He specializes in geospatial analysis and modeling with particular interests in quantitative physical geography and mountain research. Having conducted pioneering research on rock glaciers in Chile using a variety of geomatics methods, innovative statistical geocomputation methods are driving his current research. In addition to geomorphological applications such as landslide and permafrost modeling, current collaborations and applications range from hyperspectral remote sensing and precision agriculture to the spatial analysis of student jobs.

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