Statistics Seminar

Department of Mathematics and Statistics

DATE:	Thursday, February 12, 2026
TIME:	1:30pm – 2:30pm
LOCATION:	WH 100E (Zoom)
SPEAKER:	Nils Sturma, EPFL
TITLE:	Matching criterion for identifiability in sparse factor analysis

Abstract

Factor analysis models explain dependence among observed variables by a smaller number of unobserved factors. A main challenge in confirmatory factor analysis is determining whether the factor loading matrix is identifiable from the observed covariance matrix. The factor loading matrix captures the linear effects of the factors and, if unrestricted, can only be identified up to an orthogonal transformation of the factors. However, in many applications the factor loadings exhibit an interesting sparsity pattern that may lead to identifiability up to column signs. In this talk, I will present a novel sufficient condition for identifiability, the matching criterion. It is obtained by connecting sparse factor models to bipartite graphs. In contrast to previous work, the matching criterion exploits sparsity by operating locally on the graph structure, thereby improving existing conditions. This is joint work with Mathias Drton, Miriam Kranzlmüller and Irem Portakal.