MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Identifiability and Estimation of Structured Latent Attribute Models

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Zoom

Abstract
Structured Latent Attribute Models (SLAMs) are popular statistical tools for developing diagnostic-based assessments in education, psychology, and other social and behavioral sciences. SLAMs can be viewed as a family of restricted discrete latent variable models, which assume that multiple discrete latent attributes explain the dependence of observed variables in a highly structured fashion. Though widely used, such structured latent class models often suffer from nonidentifiability due to the models' discrete nature and complex restricted structure. The first part of this talk introduces our recent identifiability results on SLAMs by considering both strict and partial identifiability of the model parameters. The developed identifiability conditions only depend on the design matrix and are easily checkable, which provides useful practical guidelines for designing statistically valid diagnostic tests. The second part of the talk further discusses likelihood-based approaches to estimate the latent structures and the model parameters.

Bio
Dr. Gongjun Xu is an associate professor of Statistics at the University of Michigan. He received his B.S. in Statistics from the University of Science and Technology of China in 2008, and his Ph.D. in Statistics from Columbia University in 2013. His research interests include latent variable models, psychometrics, cognitive diagnosis modeling, high-dimensional statistics, and semiparametric statistics. He received NSF CAREER Award (2019), International Chinese Statistical Association (ICSA) Outstanding Young Researcher Award (2019), and Bernoulli Society New Researcher Award (2019).

Zoom details can be found at: https://stt.natsci.msu.edu/stt-colloquium-zoom-info/

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