Mathematics, Statistics, and Computer Science **@ UIC**

Statistics and Data Science Seminar

Weak Dependence Conditions for High-Dimensional Inference: Applications to Group Comparisons

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Abstract: Recent results for high-dimensional inference make assumptions that require weak dependence (pseudo independence) between the variables. These requirements fail to be satisfied, for example, for all elliptically contoured distributions except for normal distribution. In this talk, we present weaker dependence conditions for high-dimensional asymptotic theory. With these conditions the scope of application of many high-dimensional results broadens substantially. For example, mixing-type dependence and general conditions on variance of quadratic forms are covered. The application of the new conditions will be demonstrated with high-dimensional tests for comparing group differences in terms of means and in terms of Mann-Whitney effects. The later is particularly useful for non-metric data such as ordered categorical data, and also for skewed and heavy tailed continuous data. Simulation results show favorable performance of these tests. Data from Electroencephalograph (EEG) experiment is analyzed to illustrate these applications.

The results presented in this talk are joint works with Xiaoli Kong, Department of Mathematics and Statistics, Loyola University-Chicago

Wednesday, May 1 at 4:00 PM in 636 SEO