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

Statistics and Data Science Seminar

Modeling between- and within-subject variances using mixed-effects location scale models for intensive longitudinal data

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Abstract: Intensive longitudinal data are increasingly encountered in many research areas. For example, ecological momentary assessment and/or experience sampling methods are often used to study subjective experiences within changing environmental contexts. In these studies, up to 30 or 40 observations are usually obtained for each subject over a period of a week or so. Because there are so many measurements per subject, one can characterize a subject's mean and variance and can specify models for both. In this presentation, we focus on an adolescent smoking study using ecological momentary assessment where interest is on characterizing changes in mood variation. We describe how covariates can influence the mood variances and also extend the statistical model by adding a subject-level random effect to the within-subject variance specification. This permits subjects to have influence on the mean, or location, and variability, or (square of the) scale, of their mood responses. These mixed-effects location scale models have useful applications in many research areas where interest centers on the joint modeling of the mean and variance structure.

Wednesday, March 2 at 4:00 PM in SEO 636