Data Science Seminar

Hosted by Department of Mathematical Sciences

- Date: Tuesday, September 20, 2022
- Time: 12:00pm – 1:00pm
- Room: Whitney Hall 100E
- Speaker: Dr. Soumik Banerjee (Internal)
- Title: Likelihood-based Approach for Testing the Homogeneity of Risk Difference in a Multicenter Randomized Clinical Trial

Abstract

Lipsitz et al. (1998) proposed various test procedures for testing the homogeneity of the risk difference in a multicenter randomized clinical trial when the data are sparse. However, in some situations, these test procedures showed serious liberal behaviors. To improve these test procedures, Lui and Kelly (2000) considered three different suggested approaches, but still these test procedures behave very similar by showing improvement only in power. To overcome these limitations, we develop some likelihood-based test procedures for testing the homogeneity of the risk difference based on the binomial and the beta-binomial models. We also propose to improve the existing test procedures using the correct variance estimators by taking within center correlation into account. Our proposed test procedures are then compared with existing test procedures, by Monte Carlo simulations, in terms of size and power. An illustrative application of the proposed test procedures is presented.

Biography of the speaker: Dr. Banerjee is a new Robert Riley Visiting Assistant Professor in the Department of Mathematical Sciences since 2021. He obtained his Ph.D. in Statistics from the University of Connecticut in 2021. His research mainly focuses on developing multistage sampling procedures to estimate parameters under a given model. It is a combination of including both point and interval estimation scenarios. It proves to be useful whenever a fixed sample technique fails to deliver the desired results.