

Rencontre automnale du laboratoire de statistique 2020
28 septembre 2020

Fall Meeting of Statlab 2020
September 28, 2020

Horaire / Schedule

13-13:45 Rencontre StatLab

14-14:45 Séminaire par Eric Rose (CRM-CANSSI postdoc), *présentation en anglais*

Sample Size Calculations for Precision Medicine

There has been significant attention given to developing data-driven methods for tailoring patient care based on individual patient characteristics. Dynamic treatment regimes formalize this through a sequence of decision rules that map patient information to a suggested treatment. The data for estimating and evaluating treatment regimes are usually gathered through longitudinal observational studies or through the use of Sequential Multiple Assignment Randomized Trials (SMARTs). These studies are typically sized for simple comparisons of fixed treatment sequences or in the case of observational studies sometimes not at all. We develop sample size procedures for the estimation of treatment regimes that ensure we have sufficient power for comparing the value of the optimal regime with standard of care and the value of the estimated optimal treatment regime is within a set range of the value of the true optimal regime with a high probability.

14:45-15:30 Séminaire par Anne-Sophie Charest (Université Laval), *présentation en français*

La statistique au service de la confidentialité

Toute organisation qui souhaite partager des données ou résultats d'analyses statistiques doit s'assurer de respecter la promesse de confidentialité offerte aux individus ou entreprises sur lesquels les données ont été collectées. Ce n'est pas une tâche facile, et diverses méthodes ont été proposées pour ce faire au cours des années. Je vous invite ici à un survol de la recherche en statistique à ce sujet. On abordera notamment l'utilisation de jeux de données synthétiques et la difficile question de la mesure de la protection de la confidentialité offerte par ceux-ci.

Statistics for Data Confidentiality

Any organization wishing to share data or statistical analysis results must respect the promise of confidentiality offered to the individuals or companies on which the data was collected. This is not an easy task, which various methods have been proposed to achieve over the years. I'm offering here an overview of statistical research on the subject. In particular, I will discuss the use of synthetic datasets and the difficult question of measuring the confidentiality protection they offer.

15:30-15:45 Pause

15:45-16:30 Séminaire par Taoufik Bouezmarni (Université de Sherbrooke), *présentation en français*

Testing for Granger non-causality in Expectiles

This paper proposes a consistent parametric test of Granger-causality in expectiles. Rather than focusing on a single part of the conditional distribution (Expectile Regression (ER) at 50% level is the classical conditional mean regression), we develop a test that evaluates linear causalities in all conditional expectiles, which provides a sufficient condition for Granger causality when all expectiles are considered. The proposed test statistic has correct asymptotic size and power properties. We ran a simulation experiment to investigate the finite sample properties of our proposed test.