Indiana University-Purdue University Indianapolis
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, February 01, 2022
Zoom Meeting: Meeting ID: 845 0989 4694

Speaker: Hammou Elbarmi
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Title: Restricted Estimation of the Cumulative Incidence Functions in a Competing Risks Model

Abstract:

In the competing risks problem, an important role is played by the cumulative incidence function (CIF), whose value at time t is the probability of failure by time t from a particular type of failure in the presence of other risks. In this paper we assume that we have two risks with CIFs F_1 and F_2 that satisfy $t \rightarrow F_1(t)/F_2(t)$ nondecreasing in t on $\{t, F_2(t) > 0\}$. We develop projection-type of F_1 and F_2 under this constraint that are uniformly strongly consistent estimators. We study the weak convergence of the resulting processes and show through simulation that the new estimators outperform in terms of mean square error the unrestricted nonparametric estimators corresponding to F_1 and F_2. These results are also extended to the censored case. We also provide some real life example.

Bio:

Dr. Hammou Elbarmi is a Professor in the Paul H. Chook Department of Information Systems and Statistics at Baruch College, City University of New York. He received his PhD in Statistics from University of Iowa in 1993. Dr. Elbarmi's research interests include Order Restricted Inference, Survival Analysis and Categorical Data Analysis.