Extensions of the C-statistic for assessing concordance and predictive discrimination

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Presenter:
Dr. Ruosha Li
Associate Professor
Department of Biostatistics and Data Science
UTHealth School of Public Health

Abstract
The C-statistic is a commonly used measure for assessing concordance and discrimination. In this talk, I will present two recent extensions of the C-statistic. The first approach focuses on a conditional version of the C-statistic given covariates, which can facilitate cleaner and less confounded insights into the concordance between bivariate outcomes. The proposed methods build on the relationship between the C-statistic and the Kendall’s tau. I will illustrate the proposed methods through application to a study of twin’s hourly wages. The second approach revolves time-dependent predictive discrimination for survival outcomes. The time-dependent AUC is a natural extension of the C-statistic to capture local patterns in predictive discrimination. We develop estimation and inferential techniques to assess the time-dependent AUC with model-based prediction tools. The methods will be illustrated through application to a benchmark survival dataset.