2026

DATA SCIENCE CONVERGENCE RESEARCH CENTER

SEMINAR

Semiparametric estimators for regression in the presence of a randomly right-censored covariate

DATE

May 8, 2026
11:00 – 12:00 AM

LOCATION

CHUNG-ANG UNIVERSITY
310관 413호

SPEAKER

서울시립대학교 통계학과 이성호 교수

In Huntington's disease research, a current goal is to understand how symptoms change prior to a clinical diagnosis. Achieving this goal entails modeling symptom severity as a function of the covariate 'time until diagnosis', which is often heavily right-censored in observational studies. Statistically, this modeling translates to regression analysis in the presence of a randomly right-censored covariate. Existing estimators differ in their statistical efficiency and robustness to misspecified models for nuisance distributions—namely, the distributions of the censored covariate and censoring variable. We propose a new semiparametric estimator that is robust and efficient. When the nuisance distributions are modeled parametrically, the estimator is doubly robust, i.e., consistent if at least one model is correctly specified, or semiparametric efficient if both models are correctly specified. When the nuisance distributions are estimated consistently via nonparametric or machine learning methods, the estimator is consistent and semiparametric efficient. We show empirically that the proposed estimator has its claimed properties, and we apply it to study Huntington's disease symptom trajectories using data from the Enroll-HD study.