



THE UNIVERSITY OF
CHICAGO

Department of Statistics
STATISTICS COLLOQUIUM

Data Science Institute/Computer Science/Statistics Candidate Seminar

NIKOLAOS (NIKOS) IGNATIADIS

PhD Candidate
Stanford University

Nonparametric Empirical Bayes Inference

Monday, January 31st, 2022
4:30 PM-5:30 PM

In-Person: John Crerar Library, Room 390

[Live Stream](#) or Zoom (details sent via seminar email announcement)

Host: Matthew Stephens

ABSTRACT

In an empirical Bayes analysis, we use data from repeated sampling to imitate inferences made by an oracle Bayesian with extensive knowledge of the data-generating distribution. Existing results provide a comprehensive characterization of when and why empirical Bayes point estimates accurately recover oracle Bayes behavior. In the first part of this talk, we construct flexible and practical nonparametric confidence intervals that provide asymptotic frequentist coverage of empirical Bayes estimands, such as the posterior mean and the local false sign rate. From a methodological perspective, we build upon results on affine minimax estimation, and our coverage statements hold even when estimands are only partially identified or when empirical Bayes point estimates converge very slowly. In the second part of the talk, we apply these ideas to study randomization-based inference for treatment effects in the regression discontinuity design under a model where the running variable has exogenous measurement error.

Bio: [Nikolaos Ignatiadis](#) is a final-year Ph.D. student in the Department of Statistics at Stanford University, advised by Prof. Stefan Wager. His research interests include empirical Bayes methods, causal inference, multiple testing, and statistical analysis in the presence of contextual side information. Before coming to Stanford, Nikolaos received degrees in Mathematics (B.Sc.), Molecular Biotechnology (B.Sc.), and Scientific Computing (M.Sc.) at the University of Heidelberg in Germany, where he worked with Dr. Wolfgang Huber at the European Molecular Biology Laboratory.