

NYU Stern School of Business
Department of Information, Operations & Management Sciences
STATISTICS RESEARCH SEMINAR

TOPIC: Consistent Cross-Validation for Tuning Parameter Selection in High-Dimensional Variable Selection

SPEAKER: Yang Feng (Columbia University)

DATE: Friday, October 31, 2014

TIME: 11:30 AM - 12:30 PM

PLACE: KMC 4-80

Abstract

Asymptotic behavior of the tuning parameter selection in the standard cross-validation methods is investigated for the high-dimensional variable selection problem. It is shown that the shrinkage effect of the Lasso penalty is not always the true reason for the over-selection phenomenon in the cross-validation based tuning parameter selection. After identifying the potential problems with the standard cross-validation methods, we propose a new procedure, Consistent Cross-Validation (CCV), for selecting the optimal tuning parameter. CCV is shown to enjoy the tuning parameter selection consistency property under certain technical conditions. Extensive simulations and real data analysis support the theoretical results and demonstrate that CCV also works well in terms of prediction.

Bio

Yang Feng is an assistant professor of [Statistics](#) at [Columbia University](#). He got his Ph.D. from the Department of [Operations Research & Financial Engineering](#) (ORFE) at [Princeton University](#) under the supervision of [Professor Jianqing Fan](#) in 2010. Before that, he received his B.S. in Mathematics from the [Special Class for the Gifted Young](#) (SCGY), [University of Science and Technology of China](#) (USTC) in 2006.