

Statistical Machine Learning Seminar
Hosted by Department of Mathematical Sciences

- Date: Tuesday, September 23, 2014
- Time: 12:00-1:00
- Room: OW-100E
- Speaker: Wei Sun (Purdue University)
- Title: Causal Inference Framework for Complex Advertising Effect Measurement

Abstract

As the online advertising industry has evolved into an age of diverse ad formats and delivery channels, users are exposed to complex ad treatments involving various ad characteristics. The diversity and generality of ad treatments call for accurate and causal measurement of ad effectiveness. In this talk, I will present a new causal inference framework for assessing the impact of general advertising treatments. It enables analysis on multi-dimensional ad treatments, where each ad treatment could be discrete or continuous. Our approach is unbiased and computationally efficient by employing a tree structure that specifies the relationship between user characteristics and the corresponding ad treatment. This framework is robust to model misspecification and highly flexible with minimal manual tuning. The efficacy of our approach is demonstrated in several advertising campaigns:

1. Investigate best frequency of ads in the campaign. We show that the ad frequency usually has a treatment effect cap and is often over-estimated by naive estimation. This investigation suggests adjusting the cap of the ad frequency to avoid wasting of ad inventory.
2. Investigate best ads size on different mobile devices. Our model suggests that the ad size 300*250 produces consistently high success rates across various mobile devices.

Bio: Wei Sun is a graduate student from Department of Statistics at Purdue University. His research interests expand various aspects of statistical machine learning and high dimensional data analysis. He has published in Journal of Machine Learning Research and Electronic Journal of Statistics. Wei Sun received an Institute of Mathematical Statistics Travel Award in 2013.

Itinerary	
9:30 - 10:00	Xingye Qiao
10:00 - 10:30	Graduate student(s)
10:30 - 11:00	Qiqing Yu
11:00 - 11:30	Ganggang Xu
12:00 - 1:00	Talk
1:00 - 2:00	Lunch with graduate students
2:00	Departure

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