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

TOPIC: Randomization on-the-fly for Crowdsourced Experiments and Clinical Trials
SPEAKER: Adam Kapelner (Queens College)
DATE: Friday, May 13th, 2016
TIME: 11:30 AM - 12:30 PM
PLACE: KMC 2-80

ABSTRACT

In clinical trials and online experimentation (such as on Amazon's Mechanical Turk) subjects are assigned to “treatment” or “control” sequentially at the time the subject enters the system. The gold standard is random assignment, but if the sample size is modest, then this might result in imbalances, either in the number assignment to each arm, or in the values of the covariates between treatment and control samples. I present a dynamic allocation procedure that maintains the mathematical properties of randomization and that leads to an increase in power and efficiency when measuring an average treatment effect. The simple idea is to consider that subjects arrive iteratively and are either randomized to one of the treatment arms, or paired via a matching criterion to a previously randomized subject (and administered the alternate treatment). We develop estimators for the average treatment effect that combine information from both the matched pairs and unmatched subjects. Simulations illustrate the method’s higher power and efficiency over several competing allocation procedures for simulated data as well as data from a clinical trial. A discussion of some of my online experiments and future directions of the methods will also be discussed.

BIO

I'm an Assistant Professor of Mathematics at Queens College in New York City. I recently graduated with a Ph.D. in Statistics from Wharton Business School. I was previously a software engineer building web applications in San Francisco and a computational science undergraduate at Stanford University. I love teaching, interdisciplinary research and engineering statistically-inspired solutions to real-life problems.

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