

AMS280B-01: Seminars in Statistics for Nov-5th (Monday 4pm at BE 156)

Speaker: Ben Letham, Core Data Science, Facebook

Title: Bayesian optimization and online experiments

Abstract: Randomized experiments, commonly referred to as A/B tests, provide a direct measurement of the effect of changes to an online system. Using randomized experiments to tune parameters of online systems is challenging because these experiments are typically time-consuming and noisy. We will discuss how Bayesian optimization is used in this setting at Facebook, such as for optimizing web server compiler flags and tuning online ranking systems. The core of the approach is a Bayesian nonparametric model of the relationship between the parameter space and the experiment outcomes. That model then guides an efficient search of the space with an explore/exploit strategy. Finally, we will discuss how multi-task models are used to borrow strength from quick-but-biased offline simulations, greatly improving the efficiency of online experimentation.