Speaker: Karthik Sridharan  
*Department of Statistics, The Wharton School of the University of Pennsylvania*

Title: Sequential Prediction: From Theory to Algorithms and Applications

Abstract:

In recent years sequential prediction (online learning) has received much attention, as it often produces efficient forecasters that enjoy robustness to non-iid and even non-stationary data sources. However, despite the extensive existing literature in the field, our theoretical understanding of the framework has been rather lacking. Most existing analyses have been case by case, and there is a lack of a general theory for sequential prediction that parallels statistical learning theory. The goal of this talk is to first present a theory for sequential prediction that parallels results from statistical estimation and learning theory. Building on this general theory, I will further present a generic recipe for deriving forecasters, or learning algorithms, for the problem of sequential prediction. Finally, we shall see how the tools and techniques presented can be applied to design efficient algorithms for several interesting problems, including the problem of collaborative filtering and predictions over graphs.