

University of Rochester  
Department of Electrical and Computer Engineering Colloquia

Dynamic Robust PCA

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12:00 PM – 1:00 PM  
Computer Studies Building (CSB) 209

Abstract: A significant fraction of data generated by various sources in the current big data age is of a "streaming" nature which can either not be stored or not be stored for too long. Examples include texts, tweets, network traffic, changing Facebook connections, or video surveillance feeds coming in from one or multiple cameras. A crucial first step in working with these big datasets is to clean them up by performing noise/outlier removal and dimensionality reduction. Traditionally, this is done by solving the principal components' analysis (PCA) problem. While PCA is a classical well studied problem, traditional techniques fail if the data is corrupted by anything other than small noise. However, very often, a lot of current datasets are highly noisy and contain large magnitude but sparse outliers. Moreover, in many cases, dynamic algorithms are needed either because decisions are needed in real time or because the data subspace itself changes with time and needs to be updated. This problem of tracking the low dimensional subspace, in which a given dataset lies, in the presence of sparse outliers is referred to as dynamic robust PCA. While

