

DEPARTMENT OF STATISTICS AND BIOSTATISTICS

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*Online PCA: a non-asymptotic bound for the estimation of the eigenvectors***December 5, 2017****1:30 – 2:30pm**

Light refreshments will be served

110 Frelinghuysen Road**Hill Center, Room 552**

Abstract: We consider the online version of the well-known Principal Component Analysis (PCA) problem. Let $X \in \mathbb{R}^p$ be a random vector with zero mean and unknown covariance matrix Σ . In the online setting, we receive i.i.d. copies of X one at a time and our goal is to update our estimate of the top eigenvector of Σ with each new data point. Krasulina (1969) suggested an online estimation procedure and proved its consistency in the standard setting where p is fixed and $n \rightarrow \infty$. In this work, we derive non-asymptotic estimation bound for Krasulina's method that holds valid in the high-dimensional setting $p \gg n$.

Joint work with Jiangning Chen (Georgia Inst. of Technology)

Bio: Karim Lounici is a Professor of Statistics at Université de Nice-Sophia Antipolis. His main field of research concerns the estimation of various types of high-dimensional matrices with specific low complexity structures. His most recent work is about the theoretical analysis of standard PCA for high-dimensional data.

