מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Machine Learning and Statistics Seminar

Room 141 ,Ziskind Building
on Monday, Dec 26, 2016
at 11:45

Note unusual time and place

Elad Hazan
Princeton

A Non-generative Framework and Convex Relaxations for Unsupervised Learning

Abstract:

We will describe a novel theoretical framework for unsupervised learning which is not based on generative assumptions. It is comparative, and allows to avoid known computational hardness results and improper algorithms based on convex relaxations. We show how several families of unsupervised learning models, which were previously only analyzed under probabilistic assumptions and are otherwise provably intractable, can be efficiently learned in our framework by convex optimization. These includes dictionary learning and learning of algebraic manifolds. Joint work with Tengyu Ma. === Bio === Elad Hazan is a professor of computer science at Princeton university. His research focuses on the design and analysis of algorithms for basic problems in machine learning and optimization. Amongst his contributions are the co-development of the AdaGrad algorithm for training learning machines, and the first sublinear-time algorithms for convex optimization. He is the recipient of (twice) the IBM Goldberg best paper award in 2012 for contributions to sublinear time algorithms for machine learning, and in 2008 for decision making under uncertainty, a European Research Council grant, a Marie Curie fellowship and a Google Research Award (twice). He served on the steering committee of the Association for Computational Learning and has been program chair for COLT 2015.