



THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Machine Learning and Statistics Seminar

Room 1 ,Ziskind Building  
on Wednesday, May 13, 2015  
at 11:15

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Machine Learning: Is it Artificial Intelligence, Statistics or Algorithms?

Abstract:

Machine learning originates from different fields: Artificial Intelligence (e.g, the Perceptron), Statistics (e.g., the Vapnik-Chervonenkis dimension) and Algorithms (e.g., Valiant's theory of the learnable). In this talk I will show how machine learning relates and differs from these fields while focusing on learning and inference of high-dimensional structures. Such structures arise in various AI applications, for example objects computer vision, parses in natural language processing and molecular structures in computational biology. I will present perturb-max models, which are high-dimensional probability models that measure the stability of prediction to random shifts of data measurements. These models replace the standard Gibbs distributions and allow efficient sampling, as well as generalization and regret bounds.