



THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Machine Learning and Statistics Seminar

Room 1 ,Ziskind Building
on Wednesday, Jul 05, 2017
at 11:15

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Technion

Common Manifold Learning with Alternating Diffusion

Abstract:

We consider the problem of hidden common manifold extraction from multiple data sets, which have observation-specific distortions and artifacts. A new manifold learning method is presented based on alternating products of diffusion operators and local kernels. We provide theoretical analysis showing that our method is able to build a variant of the Laplacian of the hidden common manifold, while suppressing the observation-specific artifacts. The generality of this method is demonstrated in data analysis applications, where different types of devices are used to measure the same activity. In particular, we present applications to problems in biomedicine, neuroscience, and audio analysis. This is joint work with Roy Lederman and Hau-tieng Wu.