



ANALYSIS SEMINAR

Learning functions on data defined on manifolds

by

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ABSTRACT

A major problem in learning theory is the following: given a finite amount of data of the form $\{(x_k, y_k)\}_{k=1}^M$, construct a function f that underlies the data. Many new applications deal with the case when the points $\{x_k\}$ form a large subset of a very high dimensional Euclidean space. Moreover, one does not have any control on how to choose the points x_k . One can assume that the data set belongs to some low dimensional manifold. However, this manifold is **unknown**. Recent ideas based on Laplacian eigenmaps (equivalently, diffusion kernel) focus on a representation of the geometrical features of the data set. The talk will present our own recent research going beyond such representation problems to the problem of modeling of functions on the unknown, data defined manifold. The applications include image analysis, pattern recognition, analysis of chemical structures, prediction of time series, etc.

Monday, February 6, 2012 at 3:00-4:00 pm

Davidson Lecture Hall, Claremont McKenna College

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