Math 278B - Mathematics of Information, Data, and Signals Seminar

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Non-Parametric Estimation of Manifolds from Noisy Data

Abstract:
A common task in many data-driven applications is to find a low dimensional manifold that describes the data accurately. Estimating a manifold from noisy samples has proven to be a challenging task. Indeed, even after decades of research, there is no (computationally tractable) algorithm that accurately estimates a manifold from noisy samples with a constant level of noise. In this talk, we will present a method that estimates a manifold and its tangent in the ambient space. Moreover, we establish rigorous convergence rates, which are essentially as good as existing convergence rates for function estimation. This is a joint work with Barak Sober.

Host: Alex Cloninger

Thursday, September 30, 2021
11:30 AM
Virtual Talk Zoom link: https://ucsd.zoom.us/j/98762502667