
ERIC PRICE, UT Austin

Compressed Sensing and Generative Models

The goal of compressed sensing is make use of image structure to estimate an image from a small number of linear measurements. The structure is typically represented by sparsity in a well-chosen basis. We show how to achieve guarantees similar to standard compressed sensing but without employing sparsity at all – instead, we suppose that vectors lie near the range of a generative model $G : \mathbb{R}^k \rightarrow \mathbb{R}^n$.

This talk will discuss two aspects of this problem. First, given a Lipschitz generative model that represents the data, we show that relatively few Gaussian linear measurements allow for robust estimation. Second, we consider how to learn such a generative model (as a generative adversarial network) from incomplete and inaccurate measurements.

This talk is based on joint work with Ashish Bora, Alex Dimakis, and Ajil Jalal.