



THE UNIVERSITY OF CHICAGO

Department of Statistics

STATISTICS COLLOQUIUM

PAUL HAND

Computational and Applied Mathematics
Rice University

Signal Recovery Despite Outliers

WEDNESDAY, February 1, 2017, at 12:00 PM
Math-Stat 112 (Stevanovich Center), 5727 S. University Avenue

ABSTRACT

In many signal recovery problems, data can contain many outliers. For example, highly erroneous measurements can appear from occlusion, sensor failure, sensor saturation, and preprocessing steps. In these cases, signal estimation is challenging because the distribution of outliers is typically unknown a priori. In this talk, we will discuss corruption tolerant algorithms that arise in the phase retrieval problem from X-ray crystallography and from the location recovery problem from computer vision. In both of these problems, we will show that a convex program can provably succeed at recovering a synthetic signal exactly in the presence of data corruption. The discussed works are in collaboration with Laurent Demanet, Vladislav Voroninski, Choongbum Lee, Thomas Goldstein, Stefano Soatto, Thang Huynh, and Babhru Joshi.