

ICTS Colloquium

Title : Parsimonius Model Estimation in the presence of correlated variables

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Date : Monday, March 12, 2018

Time : 3:00 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : LASSO is a computationally attractive technique for Parsimonius model estimation. Though highly successful in many applications, LASSO fails to identify the true model when the predictors are correlated. Recent attempts suggest that instead of using ℓ_1 norm based regularization, such as the one used in LASSO, one should use an Ordered Weighted ℓ_1 (OWL) norm regularization. In this talk we will discuss the efficacy of OWL for model estimation and show that OWL induces un-necessary bias. By using a Sub-modular perspective we motivate Smoothed OWL (SOWL), a new norm, which significantly alleviates this problem. We establish several algorithmic and theoretical properties of SOWL including group identification and model consistency. We also provide algorithmic tools to compute the SOWL norm and its proximal operator, whose computational complexity $O(d \log d)$ is significantly better than that of general purpose solvers.