MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

Adityanand Guntuboyina
University of California Berkeley
MARS via LASSO

Tuesday, September 6, 2022
10:20 AM - 11:10 AM Eastern Time
Zoom

Abstract
MARS is a popular method for nonparametric regression proposed by Friedman in 1991. MARS fits simple nonlinear and non-additive functions to regression data. We propose and study a natural LASSO variant of the MARS method. Our method is based on least squares estimation over a convex class of functions obtained by considering infinite-dimensional linear combinations of functions in the MARS basis and putting a variation based complexity constraint. Our method is naturally connected to nonparametric function estimation methods under smoothness constraints. Under natural design assumptions, we prove that our estimator achieves a rate of convergence that depends only logarithmically on dimension and thus avoids the usual curse of dimensionality to some extent. This is joint work with Dohyeong Ki (UC Berkeley) and Billy Fang (Google).

Bio
Adityanand Guntuboyina received the B.Stat. and M.Stat. degrees from the Indian Statistical Institute, Kolkata, India in 2004 and 2006, respectively, and the Ph.D. degree in statistics from Yale University, USA, in 2011. He was a postdoctoral research associate at the Wharton Statistics Department, University of Pennsylvania, USA from July, 2012 to December, 2012. He joined the faculty at the Department of Statistics, University of California Berkeley in January 2012 where he is currently an Associate Professor. His research interests are broadly in the areas of nonparametric statistics, Bayesian methodology, statistical learning and information theory. He is currently working on problems of nonparametric estimation and inference under smoothness and shape constraints. He is currently serving on the editorial boards of the Annals of Statistics and Sankhya, Series A as an Associate Editor.

Zoom details can be found at: https://stt.natsci.msu.edu/stt-colloquium-zoom-info/

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