Veeranjaneyulu Sadhanala

Contact Information

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Research Interests

Nonparametric regression, Optimization and Statistical learning theory

Education

University of Chicago, Chicago, Illinois USA — Aug 2019 - Current

Post-doctoral researcher working on interpreting black-box machine learning models with Prof. Sendhil Mullainathan and Prof. Tengyuan Liang

Carnegie Mellon University, Pittsburgh, Pennsylvania USA — Aug 2013 - May 2019

Ph.D. , Machine Learning

- Dissertation Topic: "Nonparametric Methods with Total Variation Regularization"
- Advisor: Ryan J. Tibshirani

M.S., Machine Learning, December 2017

Indian Institute of Technology, Bombay, India — Jul 2005 - May 2009

B.Tech., Computer Science and Engineering

Teaching Experience

Carnegie Mellon University, Pittsburgh, Pennsylvania USA

Teaching Assistant — Fall 2014 - Spring 2015
Introduction to Machine Learning(10-715), Fall 2014, CMU
Convex Optimization(10/36-725), Spring 2015, CMU

Industry Experience

Amazon, San Jose, CA, USA
Summer Internship — Jun 2016 - Aug 2016
Studied channel assignment and connectivity problems of a wireless mesh network via max-k-cut and graph effective resistance formulations.

Quantitative Analyst, Morgan Stanley
Associate, Strategies and Modeling, Morgan Stanley, New York, NY, USA — Jan 2012 - May 2013
Analyst, Strategies and Modeling, Morgan Stanley, Mumbai, India — Jul 2009 - Jan 2012
Valued interest rate and foreign exchange derivative contracts as conditional expectations of payment amounts contingent upon certain financial market variables. Computed these expectations by numerical integration or by solving PDEs. Brought 250000 interest rates swaps and swaptions in various currencies into production in a new library for risk calculation.

Papers

Additive Models with Trend Filtering
Veeranjaneyulu Sadhanala, Ryan Tibshirani.
Annals of Statistics, 2019.

A Higher-Order Kolmogorov-Smirnov Test
Veeranjaneyulu Sadhanala, Aaditya Ramdas, Yu-Xiang Wang, Ryan Tibshirani.
Oral Presentation. International Conference on Artificial Intelligence and Statistics, 2019.

Higher-Order Total Variation Classes on Grids: Minimax Theory and Trend Filtering Methods
Veeranjaneyulu Sadhanala*, Yu-Xiang Wang*, James Sharpnack, Ryan Tibshirani.

Advances in Neural Information Processing Systems, 2017.
(* indicates equal contribution)

Total Variation Classes Beyond 1d: Minimax Rates, and the Limitations of Linear Smoothers
Veeranjaneyulu Sadhanala*, Yu-Xiang Wang*, Ryan Tibshirani.
Advances in Neural Information Processing Systems, 2016.

Graph Sparsification Approaches for Laplacian Smoothing
Veeranjaneyulu Sadhanala*, Yu-Xiang Wang*, Ryan Tibshirani.
International Conference on Artificial Intelligence and Statistics, 2016.

Parallel and Distributed Block-Coordinate Frank-Wolfe Algorithms
Yu-Xiang Wang, **Veeranjaneyulu Sadhanala**, Wei Dai, Willie Neiswanger, Suvrit Sra, and Eric Xing. International Conference on Machine Learning, 2016.

Scheduling of dataflow models within the reconfigurable video coding framework
Jani Boutellier , **Veeranjaneyulu Sadhanala**, Christophe Lucarz , Philip Brisk , Marco Mattavelli.
IEEE Workshop on Signal Processing Systems, 2008.

Professional Services

Reviewed for Annals of Statistics (2017-2020), Journal of the American Statistical Association (2017), SIAM Journal on Optimization (2016), Neural Information Processing Systems (2016, 2018,2019), International Conference on Artificial Intelligence and Statistics (2016-2021), Journal on Advances in Signal Processing (2018), Optimization Methods and Software (2015), Applied and Computational Harmonic Analysis (2021).

Programming Skills

Proficient in C++, Java, MATLAB, Python and R. Have working knowledge in Scala and SQL. Can work with TensorFlow. Have experience in implementing numerical algorithms.

R package: co-developed `glmgen` package.