Hang Deng

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Contact

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Research Interests

High-dimensional Statistics, Central Limit Theorem, Shape Constrained Regression, Nonparametrics, Large Scale Inference, Bootstrap methods, Statistical Machine Learning, Neural Network Overparameterization

Education

Rutgers University, New Brunswick, NJ
Ph.D. candidate, Statistics
Advisor: Prof. Cun-Hui Zhang
Expected to graduate in May 2021

Rutgers University, New Brunswick, NJ
M.Sc. Statistics, *Jan. 2017*

Fudan University, Shanghai, China
B.Sc. Mathematics and Applied Mathematics, *June 2015*

Papers & Technical reports

- **Deng, Hang**. "Slightly conservative bootstrap for maxima of sums". Submitted. Available at *arXiv:2007.15877* (2020).
- **Deng, Hang**, Qiyang Han, and Bodhisattva Sen. "Inference for local parameters in convexity constrained models." Submitted. Available at *arXiv:2006.10264* (2020).
- **Deng, Hang**, Qiyang Han, and Cun-Hui Zhang. "Confidence intervals for multiple isotonic regression and other monotone models". Submitted to ***Annals of Statistics***, revision invited and submitted. Available at *arXiv:2001.07064* (2020).
- **Deng, Hang**, and Cun-Hui Zhang. "Isotonic regression in multi-dimensional spaces and graphs". Accepted by ***Annals of Statistics***, to appear. Available at *arXiv:1812.08944* (2018).
- **Deng, Hang**, and Cun-Hui Zhang. "Beyond Gaussian approximation: Bootstrap for maxima of sums of independent random vectors." Accepted by ***Annals of Statistics***, to appear. Available at *arXiv:1705.09528* (2017).
- Abdulla, G. M., **H. Deng**, B. Soper, J. Nagrad, and M. Nygard. Filling the gaps: using a static data source to create a rich temporal dataset. No. LLNL-CONF-752118. Lawrence Livermore National Lab.(LLNL), Livermore, CA, (2018).
  Technical report at *Second ISC HPC Applications in Precision Medicine Workshop, 2018*

Research Experiences

Lawrence Livermore National Laboratory, CA *07/2017 - 09/2017*
NSF Graduate Intern at Institute for Scientific Computing Research
- Supported by **NSF-Mathematical Sciences Graduate Internship Program.**
- Collaborated with the Cancer Registry of Norway to construct a personalized cervical cancer screening policy for women in Norway.
- Proposed a deep learning framework which builds a long short-term memory (LSTM) neural network for each woman using her survey and screening test data and trains all neural nets with transfer learning.
- See my story on SIAM News or the NSF-Mathematical Sciences Graduate Internship Program website.

Honors & Awards

- **Oberwolfach Leibniz Graduate Student**, Mathematical Research Institute of Oberwolfach, Germany, 2018
- **Best Ph.D Qualifying Exam Performance**, Department of Statistics, Rutgers University, 2016. *Awarded for the highest score in qualifying exam.*
- **Conference Travel Award**, Rutgers University, 2018
- **TA/GA Professional Development Fund Award**, Rutgers University, 2017-2018
- **Outstanding Graduate of Fudan University**, Fudan University, 2015.
- **Scholarship for Outstanding Students at Fudan University**, Fudan University, 2012-2014.

Selected Talks

- Invited Talk. JSM, Denver, CO, "Isotonic Regression in Multi-Dimensional Spaces and Graphs", *July 2019*
- Invited Talk. International Workshop on Perspectives on High dimensional Data Analysis, Uppsala, Sweden. "Beyond Gaussian Approximation: Bootstrap for Maxima of Sums of Independent Random Vectors", *June 2019*
- PhD Student Talk. Statistical Inference for Structured High-dimensional Models Workshop, MFO, Germany, "Beyond Gaussian Approximation: Bootstrap for Maxima of Sums of Independent Random Vectors", *March 2018*
- Seminar Talk. Lawrence Livermore National Lab, Livermore, CA, "Feature Extraction from Patients Surveys to Facilitate Learning from Cervical Screening Data", *Sept. 2017*

Teaching

Rutgers University, New Brunswick, NJ

Instructor

Linear Algebra and Multivariable Calculus Review for FSRM and MSDS (Fall 2020)

Teaching Assistant

Computing and Graphics in Applied Statistics (Spring 2020), Introductory Statistics for Business (Fall 2019), Algorithm Trading & Portfolio Management (Fall 2018), Design of Experiments (Fall 2018), Basic Statistics for Research (Fall 2016, Spring 2017), Statistics I (Fall 2016, Spring 2017).

Academic Services

Reviewer for *Annals of Statistics*, *Probability Theory and its Related Fields*, and *Statistical Sciences*.

Skills

R, C++, Matlab, Python, Matlab, LaTeX, SQL