Yao Ji

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EDUCATION

Purdue University, West Lafayette, Indiana   Aug. 2019 — May. 2024 (Expected)
Ph.D. in Operation Research
Advisors: Gesualdo Scutari, Harsha Honnappa
Committee: Gesualdo Scutari, Harsha Honnappa, Raghu Pasupathy, Alex L. Wang

Beijing Normal University, Beijing, China   Aug. 2016 — Jun. 2019
M.S. in Probability and Mathematical Statistics
Advisor: Wenming Hong
Thesis: Conditional Limit Theorem for Bellman-Harris Branching Process

Beijing Normal University, Beijing, China   Aug. 2012 — Jun. 2016
B.S. in Mathematics
Thesis: Conceptual New Proofs of Geometric Convergence of Moment Generating Function for Galton-Waston Process in the Noncritical Case

RESEARCH INTERESTS

- **Methodology**: Distributed Machine Learning, Large-scale Stochastic Optimization, Nonsmooth and Nonconvex Optimization, Statistical Machine Learning, Distributed Estimation and Inference, High-dimensional Estimation and Inference, Branching Process, Random Walk in Random Environment
- **Application**: Distributed Energy Resources (DERs) in Power Systems, Distributed Optimization on Edge Computing, Distribute Page Ranking

PUBLICATIONS

Distributed Sparse Regression via Penalization
Yao Ji, Gesualdo Scutari, Ying Sun, Harsha Honnappa
`Journal of Machine Learning Research, 2023`

Distributed (ATC) Gradient Descent for High Dimension Sparse Regression
Yao Ji, Gesualdo Scutari, Ying Sun, Harsha Honnappa
`IEEE Transactions on Information Theory, 2023`

Reduced critical Bellman–Harris branching processes for small populations
Vladimir Vatutin, **Yao Ji**, Wenming Hong
`Discrete Mathematics and Applications, 2018`

WORKING PAPERS

Distributed Composite Stochastic Mirror Descent for Stochastic Optimization, 2023+
Yao Ji, Gesualdo Scutari, Harsha Honnappa
- *Stochastic optimization and sparse statistical recovery over a network*
- *Unification of decentralized stochastic mirror descent*

Distributed Top-K ranking, 2023+
Yao Ji
- *Identifiability of Top-K ranked items over a network based on pairwise comparison*
- *Distributed Maximum Likelihood Estimator for Top-K ranking*

TEACHING EXPERIENCE

Purdue University, School of Industrial Engineering
Teaching Assistant:

IE 335 Operation Research	Fall, Spring 2023
IE 330 Probability and Statistics in Engineering	Fall 2022
IE 590 Introduction to Optimization Algorithms (graduate level)	Fall 2022

Beijing Normal University, School of Mathematical Science
Co-lecture:

Large Deviation Theory	Spring 2018
Brownian Motion	Fall 2017
Random Walk in Random Environment	Spring 2017
Galton-Waston Branching Process	Fall 2016

Teaching Assistant (Outstanding Teaching Assistant):

Measure Theory I	Fall 2017, Fall 2018
Measure Theory II	Spring 2017, Spring 2018
Stochastic Calculus for Finance (graduate level)	Fall 2016

AWARDS AND HONORS

Graduate School Summer Research Grant, Purdue University	2023
Travel Grant from Industrial Engineering, Purdue University	2023
Travel Grant from Industrial Engineering, Purdue University	2022
Ross Fellowship, Purdue University	2020
Ross Fellowship, Purdue University	2019
Dr. Theodore J. and Isabel M. Williams Fellowship in Industrial Control Systems, Purdue University	2019
First Prize Scholarship (Ranked 2/53, School of Mathematics), Beijing Normal University	2018
First Prize Scholarship (Ranked 1/12, Markov Process), Beijing Normal University	2017
Outstanding Teaching Assistant for Measure Theory, Beijing Normal University	2017
Outstanding Undergraduate Thesis in School of Mathematics, Beijing Normal University	2016
First Prize Scholarship (Top 5%), School of Mathematics, Beijing Normal University	2015
Second Prize Scholarship, School of Mathematics, Beijing Normal University	2014
Second Prize in China Undergraduate Mathematical Modeling Contest (Top 5%)	2014

PRESENTATIONS

Cornell Young researchers Workshop , Ithaca	2023
Statistics and Optimization in Data Science Workshop, Purdue, West Lafayette	2023
Midwest Machine Learning Symposium, UIC, Chicago	2023
International Conference on Continuous Optimization and the Modeling and Optimization, Lehigh, Bethlehem	2022

SERVICE

Referee for Operation Research
Referee for IEEE International Symposium on Information Theory
Referee for IEEE Transactions on Automatic Control