Xiaoyi Gu

Curriculum Vitae

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Education

2017 – present **Ph.D. Candidate**, *Operations Research*, Georgia Institute of Technology.
GPA: 4.0/4.0; Advisors: Santanu S. Dey and (late) Shabbir Ahmed
Research Interests: integer optimization, non-convex optimization, machine learning and statistical learning

2013 – 2017 **B.S.**, *Applied Mathematics*, Peking University, China.

2014 – 2017 **B.S. (double degree)**, *Physics*, Peking University, China.

Ongoing Project

2020 – present Lifting Convex Inequalities for Bipartite Bilinear Programs.
Collaborators: Santanu S. Dey and Jean-Philippe P. Richard
IPCO XXII Accepted; Publication Expected Soon.

2019 – present Learning to Branch in Security-Constrained Unit Commitment.
Collaborators: Álinson Santos Xavier, Qiu Feng and Santanu S. Dey
Develop schemes of machine learning utilizing branch-and-bound results of solved mixed integer problems;
Guide branching using learned models and accelerate solving new problems;
Journal Submission Expected Spring 2021.

Publications

Xiaoyi Gu, Shabbir Ahmed, Santanu S. Dey, *Exact Augmented Lagrangian Duality for Mixed Integer Quadratic Programming*, SIAM Journal on Optimization, 2020.

Honglin Yuan, Xiaoyi Gu, Rongjie Lai, Zaiwen Wen, *Global Optimization with Orthogonality Constraints via Stochastic Diffusion on Manifold*, Journal of Scientific Computing, 2019.

Talks and Posters

Nov. 2020 INFORMS Annual Meeting 2020, Session on Frontier of Power System Optimization/Computing, Virtual.

Jul. 2019 MIP 2019, *MIT*, Boston MA.

Awards and Honors

2017 – 2019 **Kerry Clayton Fellowship**, Georgia Tech.

2015 **Silver medal, 6th Chinese Mathematics Competition**.

2013 **Silver medal, 28th Chinese Mathematical Olympiad**.

Work Experience

Summer 2019 **Research Intern**, Power Systems Branch, Argonne National Lab.

Teaching Experience

2020 **Teaching Assistant**, Machine Learning, CSE/ISYE 6740, Georgia Tech.

2019 **Teaching Assistant**, Financial Optimization, ISYE 6673, Georgia Tech.

2017 – 2018 **Teaching Assistant**, Stochastic Manufacturing & Service Systems, ISYE 3232, Georgia Tech.

Selected Courses

Machine Learning, Computational Methods, Multivariate Data Analysis, Modern Convex Optimization, Discrete Optimization, Linear Optimization, Nonlinear Optimization, Advanced Combinatorial Optimization, Advanced Statistical Modeling, Stochastic Optimization, Stochastic Programming.

Skills and Languages

Proficient in: Python, Julia, C, MATLAB, R, CPLEX, Gurobi, Scikit-learn, LaTeX.