

Cheng Guo

CONTACT INFORMATION

Website: <https://chengg04.github.io>

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RESEARCH INTERESTS

- Application areas: Energy markets, Power systems, Healthcare
- Methodologies: Copositive Programming, Stochastic programming, Integer programming, Mixed-integer nonlinear programming, Decomposition methods

EXPERIENCE

Clemson University, Clemson, SC 2021 - present
School of Mathematical and Statistical Sciences
Assistant Professor, area: Operations Research

Columbia University, New York, NY 2021 - 2022
Department of Industrial Engineering and Operations Research
Visiting Researcher

- DOE ARPA-E PERFORM (Performance-based Energy Resource Feedback, Optimization, and Risk Management) project

EDUCATION

University of Toronto, Toronto, ON 2017 - 2021
Department of Mechanical and Industrial Engineering
Ph.D. in Industrial Engineering, GPA: 3.96/4.00

- Advisor: Merve Bodur
- Selected coursework: Stochastic Programming & Robust Optimization, Modeling Interactions on Networks, OM Matching Markets, Mathematical Methods in Power Systems

Columbia University, New York, NY 2015 - 2017
Department of Industrial Engineering and Operations Research
M.S. in Operations Research

- Selected coursework: Transportation Analytics & Logistics, Optimization I, Programming for Financial Engineering, Seminar on Queueing Theory

Wuhan University, Wuhan, China 2011 - 2015
School of Economics and Management
B.A. in Economics
B.S. in Mathematics

- Hongyi Outstanding Graduates Award
- Selected coursework: Advanced Microeconomics, Industrial Organization, Advanced Macroeconomics, Advanced Financial Theory, Advanced Econometrics, Dynamic Programming, Chaotic Dynamical Systems, Topology, Functional Analysis

PUBLICATIONS

C. Guo, M. Bodur, D. J. Papageorgiou, *Generation Expansion Planning with Revenue Adequacy Constraints*, **Computers & Operations Research** 142 (2022): 105736. [\[pdf\]](#)

	<p>C. Guo, M. Bodur, D. M. Aleman, and D. R. Urbach, <i>Logic-based Benders Decomposition and Binary Decision Diagram Based Approaches for Stochastic Distributed Operating Room Scheduling</i>, INFORMS Journal on Computing 33.4 (2021): 1551-1569. [pdf]</p>
SUBMITTED PAPERS	<p>C. Guo, C. Kroer, Y. Dvorkin, D. Bienstock, <i>Incentivizing Investment and Reliability: A Study on Electricity Capacity Markets</i>, submitted, 2023. [pdf]</p> <p>C. Guo, M. Bodur, J. A. Taylor, <i>Copositive Duality for Discrete Energy Markets</i>, major revision at Management Science, 2023. [pdf]</p> <p>C. Guo, H. Nagarajan, M. Bodur, <i>Tightening Quadratic Convex Relaxations for the AC Optimal Transmission Switching Problem</i>, submitted, 2022. [pdf]</p>
PAPERS IN PREPARATION	<p><i>Risk-aware security-constrained unit commitment</i>, in preparation.</p> <p>A. Deza, C. Guo, M. Bodur, <i>A Multistage Stochastic Integer Programming Approach to Distributed Operating Room Scheduling</i>, in preparation.</p> <ul style="list-style-type: none"> • Selected as a finalist in 2020 INFORMS Undergraduate OR Prize Competition.
HONORS AND AWARDS	<p>Finalist for student Anna Deza, INFORMS Undergraduate OR Prize Competition, 2020</p> <p>MIP Workshop Student Travel Support, 2019</p> <p>Bert Wasmund Graduate Fellowships in Sustainable Energy Research (CA\$6,221.17), 2018</p> <p>Hongyi Outstanding Graduates Award, 2015</p> <p>Economics and Management School Scholarship, 2013 - 2014</p>
TEACHING	<p>Clemson University</p> <p><i>Instructor</i></p> <ul style="list-style-type: none"> • MATH 8100 - Mathematical Programming (graduate): Fall 2022, Spring 2023, Spring 2024 • STAT 3090 - Introductory Business Statistics (undergraduate): Spring 2022 (virtual), Fall 2023 <p>University of Toronto</p> <p><i>Tutorial Teaching Assistant</i></p> <ul style="list-style-type: none"> • MIE 562 - Scheduling (undergraduate/graduate): Fall 2019, Fall 2020 • MIE 335 - Algorithms and Numerical Methods (undergraduate): Winter 2019 <p>Wuhan University</p> <p><i>Teaching Assistant</i></p> <ul style="list-style-type: none"> • Probability Theory (undergraduate): Fall 2014
ADVISING	<p>Ph.D. Students</p> <p>Benjamin Hamlin (co-advised with Margaret Wiecek)</p> <p>M.S. Students</p> <p>Lauren Henderson</p> <p>Undergraduate Students</p>

Renzo Muzzarelli, Jiayi Wang (co-advised, Columbia B.S. 2022 → Stanford Ph.D.), Anna Deza (co-advised, U. Toronto B.A.Sc. 2020 → UC Berkeley Ph.D.), Ryan Do (co-advised, U. Toronto B.A.Sc. 2019 → U. Toronto M.Eng.)

M.S. Thesis Committee Member

Yunheng Jiang(2022)

INVITED TALKS	• MIP Workshop, Los Angeles, CA	May, 2023
	• Polytechnique Montreal, GERAD Seminar, Virtual	May, 2022
	• Discrete Optimization Talks, Virtual	December, 2020
CONFERENCE PRESENTATIONS	• INFORMS Annual Meeting, Phoenix, AZ	October, 2023
	• INFORMS MSOM Conference, Montreal, QC	June, 2023
	• INFORMS Annual Meeting, Indianapolis, IN	October 2022
	• International Conference on Continuous Optimization (ICCOPT), Bethlehem, PA	July, 2022
	• INFORMS Optimization Society Conference, Greenville, SC	March, 2022
	• INFORMS Annual Meeting, Virtual	October 2021
	• International Conference on Game Theory (poster), Virtual	July 2021
	• IPCO Conference (poster), Virtual	June 2021
	• CORS Annual Conference, Virtual	June 2021
	• MIP Workshop (poster), Virtual	May 2021
	• Grid Science Winter School (poster), Virtual	January 2021
	• INFORMS Annual Meeting, Virtual	November 2020
	• INFORMS Annual Meeting, Seattle, WA	October 2019
	• DIMACS Workshop on MINLP (poster), Montreal, QC	October 2019
	• MIP Workshop (poster), Boston, MA	July 2019
	• Optimization Days, Montreal, QC	May 2019
	• INFORMS Computing Society Conference, Knoxville, TN	January 2019
ACADEMIC SERVICE	• Reviewer for <i>Management Science</i> , <i>Production and Operations Management</i> , <i>Transportation Science</i> , <i>INFORMS Journal on Computing</i> , <i>SIAM Journal on Optimization</i>	
	• Session Chair for INFORMS Optimization Society Conference 2022; INFORMS Annual Meeting 2019, 2021, 2022, 2023; CORS Annual Meeting 2021	
	• Member of INFORMS	
SKILLS	• Programming language: Python, Julia, C++	
	• Software: Gurobi, CPLEX, Knitro, Mosek	
OTHER ACTIVITIES	• INFORMS UofT Student Chapter (Honorable Mention, 2020), Vice President (2019-2021)	
	• Columbia IEOR Mentorship Program, Mentor (2018-2020)	
	• Wuhan U. Women Soccer Team, Captain (2013-2015)	