

# Cheng Guo

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## CONTACT INFORMATION

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

E-mail: [cguo2@clemson.edu](mailto:cguo2@clemson.edu)

## RESEARCH INTERESTS

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

## 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 Honor Program 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

(\*: corresponding author; Underline: student coauthor)

**C. Guo\***, M. Bodur, J. A. Taylor, *Copositive Duality for Discrete Energy Markets*, accepted at **Management Science**, 2025. [\[pdf\]](#)

D. Bienstock, Y. Dvorkin, **C. Guo\***, R. Mieth, J. Wang, *Risk-Aware Security-Constrained Unit Commitment*, **IEEE Transactions on Energy Markets, Policy and Regulation** 2.4 (2024): 536-551. [\[pdf\]](#)

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

**C. Guo\***, M. Bodur, D. M. Aleman, and D. R. Urbach, *Logic-based Benders Decomposition and Binary Decision Diagram Based Approaches for Stochastic Distributed Operating Room Scheduling*, **INFORMS Journal on Computing** 33.4 (2021): 1551-1569. [\[pdf\]](#)

## SUBMITTED PAPERS

**C. Guo\***, H. Nagarajan, M. Bodur, *Tightening Quadratic Convex Relaxations for the AC Optimal Transmission Switching Problem*, minor revision at **INFORMS Journal on Computing**, 2025. [\[pdf\]](#)

**C. Guo\***, C. Kroer, Y. Dvorkin, D. Bienstock, *Incentivizing Investment and Reliability: A Study on Electricity Capacity Markets*, submitted, 2023. [\[pdf\]](#)

## HONORS AND AWARDS

- Finalist for student Anna Deza, INFORMS Undergraduate OR Prize Competition, 2020
- MIP Workshop Student Travel Support, 2019
- Hongyi Outstanding Graduates Award, 2015
- Economics and Management School Scholarship, 2013 - 2014

## FUNDING

- Clemson University - Clemson Faculty SUCCEEDS: Program 1 (Project Initiation/SEED Funding, awarded to 16 PIs university-wide) (PI), 2024 (\$9,915)
- University of Toronto - Bert Wasmund Graduate Fellowships in Sustainable Energy Research, 2018 (CA\$6,221)

## TEACHING

### Clemson University

#### Instructor

- MATH 8100 - Mathematical Programming (graduate): Fall 2022, Spring 2023, Spring 2024, Fall 2024
- MATH 4400/6400 - Linear Programming (undergraduate/graduate): Fall 2024
- STAT 3090 - Introductory Business Statistics (undergraduate): Spring 2022 (virtual), Fall 2023, Fall 2024

### University of Toronto

#### Tutorial Teaching Assistant

- MIE 562 - Scheduling (undergraduate/graduate): Fall 2019, Fall 2020
- MIE 335 - Algorithms and Numerical Methods (undergraduate): Winter 2019

## Wuhan University

*Teaching Assistant*

- Probability Theory (undergraduate): Fall 2014

## ADVISING

### Ph.D. Students

Lauren Henderson, Benjamin Hamlin (co-advised with Margaret Wiecek)

### M.S. Students

Lauren Henderson (2024 → Clemson Ph.D.)

### Undergraduate Students

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.)

### Ph.D. Thesis Committee Member

Kristen Joyce, Sarah Kelly (2024)

### M.S. Thesis Committee Member

Yunheng Jiang (2022)

## INVITED TALKS

- Cornell University, FIND Seminar, Ithaca, NY April, 2024
- MIP Workshop, Los Angeles, CA May, 2023
- Polytechnique Montreal, GERAD Seminar, Virtual May, 2022
- Discrete Optimization Talks, Virtual December, 2020

## CONFERENCE PRESENTATIONS

- INFORMS Computing Society Conference, Toronto, ON March 2025
- INFORMS Annual Meeting, Seattle, WA October 2024
- International Symposium on Mathematical Programming, Montreal, QC July, 2024
- INFORMS Optimization Society Conference, Houston, TX March, 2024
- 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

	<ul style="list-style-type: none"> <li>• INFORMS Annual Meeting, Virtual November 2020</li> <li>• INFORMS Annual Meeting, Seattle, WA October 2019</li> <li>• DIMACS Workshop on MINLP (poster), Montreal, QC October 2019</li> <li>• MIP Workshop (poster), Boston, MA July 2019</li> <li>• Optimization Days, Montreal, QC May 2019</li> <li>• INFORMS Computing Society Conference, Knoxville, TN January 2019</li> </ul>
ACADEMIC SERVICE	<ul style="list-style-type: none"> <li>• Journal reviewer for <i>Mathematical Programming, Management Science, Manufacturing &amp; Service Operations Management, SIAM Journal on Optimization, INFORMS Journal on Computing, Transportation Science, Production and Operations Management, Computers and Operations Research, IEEE Transactions on Power Systems</i></li> <li>• Conference reviewer for <i>IEEE Power &amp; Energy Society General Meeting (2024, 2025)</i></li> <li>• Session Chair for INFORMS Optimization Society Conference (2022, 2024); INFORMS Annual Meeting (2019, 2021, 2022, 2023, 2024); CORS Annual Meeting (2021)</li> <li>• Member of INFORMS</li> </ul>
UNIVERSITY SERVICE	<ul style="list-style-type: none"> <li>• Clemson University SMSS Research Committee (2023-present)</li> <li>• Co-organizer of University of Toronto MIE UTOrg Seminar (2019-2020)</li> </ul>
ADVANCED TRAINING	<ul style="list-style-type: none"> <li>• “Cultivating an Inclusive Classroom Environment”, Academic Impressions 2024</li> </ul>
SKILLS	<ul style="list-style-type: none"> <li>• Programming language: Python, Julia, C++</li> <li>• Software: Gurobi, CPLEX, Knitro, Mosek</li> </ul>
OTHER ACTIVITIES	<ul style="list-style-type: none"> <li>• INFORMS UofT Student Chapter (Honorable Mention, 2020), Vice President (2019-2021)</li> <li>• Columbia IEOR Mentorship Program, Mentor (2018-2020)</li> <li>• Wuhan U. Women Soccer Team, Captain (2013-2015)</li> </ul>