Cheng Guo

CONTACT
INFORMATION

Website: https://chengg04.github.io   *E-mail:* cguo2@clemson.edu

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 courseworks: 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 courseworks: 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 courseworks: Advanced Microeconomics, Industrial Organization, Advanced Macroeconomics, Advanced Financial Theory, Advanced Econometrics, Dynamic Programming, Chaotic Dynamical Systems, Topology, Functional Analysis

PUBLICATIONS

(*: alphabetical author ordering; Underline: student coauthor)

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

D. Bienstock, Y. Dvorkin, **C. Guo**, R. Mieth, J. Wang,* *Risk-Aware Security-Constrained Unit Commitment*, revise and resubmit at **IEEE Transactions on Energy Markets, Policy and Regulation**, 2024. [pdf]

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

C. Guo, M. Bodur, J. A. Taylor, *Copositive Duality for Discrete Energy Markets*, major revision at **Management Science**, 2023. [pdf]

C. Guo, H. Nagarajan, M. Bodur, *Tightening Quadratic Convex Relaxations for the AC Optimal Transmission Switching Problem*, submitted, 2022. [pdf]

PAPERS IN PREPARATION

Risk-aware security-constrained unit commitment, in preparation.

A. Deza, **C. Guo**, M. Bodur, *A Multistage Stochastic Integer Programming Approach to Distributed Operating Room Scheduling*, in preparation.
- Selected as a finalist in 2020 INFORMS Undergraduate OR Prize Competition.

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) (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
- STAT 3090 - Introductory Business Statistics (undergraduate): Spring 2022 (virtual), Fall 2023

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** Benjamin Hamlin (co-advised with Margaret Wiecek)

M.S. Students
Lauren Henderson

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

CONFERENCE
PRESENTATIONS
- International Symposium on Mathematical Programming, Montreal, QC (upcoming) July, 2024
- INFORMS Optimization Society Conference, Houston, TX (upcoming)   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
- 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	• Journal reviewer for *Management Science, SIAM Journal on Optimization, INFORMS Journal on Computing, Transportation Science, Production and Operations Management* • Conference reviewer for *IEEE Power & Energy Society General Meeting* • Session Chair for INFORMS Optimization Society Conference 2022, 2024; INFORMS Annual Meeting 2019, 2021, 2022, 2023; CORS Annual Meeting 2021 • Member of INFORMS
UNIVERSITY SERVICE	• Clemson University SMSS Research Committee (2023-present) • Co-organizer of University of Toronto MIE UTORG Seminar (2019-2020)
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)