

Gonzalo E. Constante Flores

Assistant Professor

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Education

Ph.D. in Electrical and Computer Engineering

The Ohio State University, Columbus, OH, USA

Jul 2018 – Dec 2022

Advisor: Antonio J. Conejo

Thesis: *Scheduling of Power Units via Relaxation and Decomposition*

M.Sc. in Electrical and Computer Engineering

The Ohio State University, Columbus, OH, USA

Aug 2016 – Jul 2018

Diploma in Electrical Engineering

Escuela Politécnica Nacional, Quito, Ecuador

Sep 2008 – Oct 2014

Appointments

Assistant Professor

University of Colorado Boulder, Boulder, CO, USA

January 2026 – present

Visiting Researcher

University of Waterloo, Waterloo, ON, Canada

2025

Host: Claudio Cañizares

Postdoctoral Scholar

Purdue University, West Lafayette, IN, USA

Jan 2023 – Sep 2025

Research Aide

Argonne National Laboratory, Lemont, IL, USA

May 2019 – Aug 2019

Supervisor: Dongbo Zhao and Feng Qiu

Lecturer

Escuela Politécnica Nacional, Quito, Ecuador

Jun 2014 – Jul 2016

Honors & Awards

INFOR Best Paper Award

2026

Canadian Operational Research Society and INFOR: *Information Systems and Operational Research*

Sustainable Energy Paper Competition, Finalist

2026

Canadian Operational Research Society

IEEE PES Outstanding Dissertation Award, Finalist

2024

IEEE Power and Energy Society

Presidential Fellowship

2022

The Ohio State University

Outstanding Reviewer

2019

IEEE Transactions on Power Delivery

Fulbright Scholarship

Jul 2016 – May 2018

U.S. Department of State
Knowledge Generation Program Award
Vice Presidency of Ecuador

2014

Research and funding grants

Awarded

Office of Naval Research

Mathematical and Resource Optimization program

2024

Title: "Machine Learning Aided Global Optimization of MINLP"

Awarded: \$348,076.

Role: Collaborator

Amazon Research Awards

Sustainability program

2024

Title: "Design and Analysis of Sustainable Supply Chains Using Optimization and Large Language Models"

Awarded: \$50,000 + \$40,000 in AWS cloud computing credits.

Role: Collaborator

Publications

Citations (as of July 2026)

Google Scholar 664 (h-index = 12, i10-index = 16)

Scopus 362 (h-index = 9, i10-index = 8)

Percentage of self-citations $\approx 3\%$.

Books

- [B1] **G. Constante-Flores**, A. Conejo, "Optimization via Relaxation and Decomposition: Application to Large-Scale Engineering Problems", Springer, New York, 2025.

PEER-REVIEWED JOURNALS

- [J21] **G. Constante-Flores**, C. Li, "A Quadratically-Constrained Convex Approximation for the AC Optimal Power Flow," Optimization and Engineering, 2026.
- [J20] H. Chen, **G. Constante-Flores**, K. Mantri, S. Kompalli, A. Ahluwalia, C. Li, "OptiChat: Bridging Optimization Models and Practitioners with Large Language Models," *INFORMS Journal on Data Science*, 2025.
- [J19] A. Mollaali, G. Zufferey, **G. Constante-Flores**, C. Moya, C. Li, G. Lin, "Conformalized Prediction of Post-Fault Voltage Trajectories Using Pre-trained and Finetuned Neural Operators," *Neural Networks*, 2025.
- [J18] A. Khan, R. Nahar, H. Chen, **G. Constante-Flores**, C. Li, "FaultExplainer: Leveraging Large Language Models for Interpretable Fault Detection and Diagnosis," *Computers and Chemical Engineering*, 2025.
- [J17] H. Chen, **G. Constante-Flores**, C. Li, "Diagnosing infeasible optimization problems using large language models," *INFOR: Information Systems and Operational Research*, 2024.
- [J16] H. Chen, **G. Constante-Flores**, C. Li, "Physics-Informed Neural Networks with Hard Linear Equality Constraints," *Computers & Chemical Engineering*, 2024.

- [J15] R. Lima, **G. Constante-Flores**, A. Conejo, O. Knio, "An effective hybrid decomposition approach to solve the network-constrained stochastic unit commitment problem in large scale power systems," *EURO Journal on Computational Optimization*, 2024.
- [J14] A. Ramanujam, **G. Constante-Flores**, C. Li, "Distributed manufacturing for electrified chemical processes in a microgrid," *AIChE Journal*, 2023.
- [J13] **G. Constante-Flores**, A. J. Conejo, F. Qiu, "Daily scheduling of generating units with natural-gas market constraints," *European Journal of Operational Research*, 2023.
- [J12] **G. Constante-Flores**, A. J. Conejo, "Security-constrained unit commitment: A decomposition approach embodying Kron reduction," *European Journal of Operational Research*, 2023.
- [J11] X. Liu, A. J. Conejo, **G. Constante-Flores**, "Stochastic unit commitment: Model reduction via learning," *Current Sustainable/Renewable Energy Reports*, vol. 10, 2023.
- [J10] **G. Constante-Flores**, A. J. Conejo, R. Lima, "Stochastic unit commitment with weekly energy storage: A hybrid decomposition approach," *International Journal of Electrical Power & Energy Systems*, vol. 145, 2022.
- [J9] **G. Constante-Flores**, A. J. Conejo, S. Constante-Flores, "Solving certain complementarity problems in power markets via convex programming," *TOP*, 2022.
- [J8] **G. Constante-Flores**, A. J. Conejo, J.K. Wang, "Stealthy monitoring control attacks to disrupt power system operations," *Electric Power Systems Research*, 2022.
- [J7] **G. Constante-Flores**, A. J. Conejo, F. Qiu, "AC network-constrained unit commitment via relaxation and decomposition," *IEEE Transactions on Power Systems*, 2022.
- [J6] **G. Constante-Flores**, A. J. Conejo, F. Qiu, "AC network-constrained unit commitment via conic relaxation and convex programming," *International Journal of Electrical Power & Energy Systems*, 2022.
- [J5] **G. Constante-Flores**, A. J. Conejo, and J.K. Wang, "Sensitivity-based vulnerability assessment of state estimation," *Journal of Modern Power Systems and Clean Energy*, 2021.
- [J4] A. J. Conejo, S. Chen, and **G. Constante**, "Operations and long-term expansion planning of natural-gas and power systems: A market perspective," *Proceedings of the IEEE*, 2020.
- [J3] J.K. Wang, **G. Constante**, C. Moya, and J. Hong, "A semantic analysis framework for protecting the power grid against monitoring-control attacks," *IET Cyber-Physical Systems: Theory & Applications*, 2020.
- [J2] **G. Constante**, J. Abillama, M. Illindala, "Conservation voltage reduction of networked microgrids", *IET Generation, Transmission, & Distribution*, 2019.
- [J1] **G. Constante**, M. Illindala, "Data-driven probabilistic power flow analysis for a distribution system with renewable energy sources using Monte Carlo simulation," *IEEE Transactions on Industry Applications*, 2019.

JOURNALS SUBMITTED FOR PUBLICATION

- [S2] **G. Constante-Flores**, C. Li, "Stability-Constrained Optimal Power Flow using a Data-Tuned Low-Fidelity Surrogate Model."
- [S1] A. Anrrango, A. Quisaguano, **G. Constante-Flores**, C. Li, "Self-Supervised Learning of Parametric Approximation for Security-Constrained DC-OPF."

JOURNALS UNDER PREPARATION

- [U1] A. Quisaguano, **G. E. Constante-Flores**, and C. Li, “Learning to Tune Low-Fidelity Optimization Proxies.”

PEER-REVIEWED CONFERENCE PROCEEDINGS

- [C3] **G. Constante-Flores**, H. Chen, C. Li, “[Enforcing Hard Linear Constraints in Deep Learning Models with Decision Rules](#),” in *Advances in Neural Information Processing Systems (NeurIPS)*, 2025.
- [C2] **G. E. Constante-Flores**, A. Quisaguano, A. J. Conejo and C. Li, “AC-Network-Informed DC Optimal Power Flow for Electricity Markets”, in *58th Hawaii International Conference on System Sciences (HICSS)*, 2025.
- [C1] C. Staiger, B. Sim, **G. E. Constante**, J.K. Wang, “Predicting the impact of increasing plug-in electric vehicle loading on bulk transmission systems”, in *2019 IEEE Power Energy Society General Meeting (PESGM)*, 2019.

Teaching

University of Colorado Boulder

Department of Electrical, Computer & Energy Engineering

Spring 2026

- ECEN 2410 Renewable Sources and Efficient Electrical Energy Systems

Escuela Politécnica Nacional

Lecturer

Oct 2014 – Jul 2016

- IEE573 Electrical and Communication Installations
- Seminar on Power Quality
- Seminar on Power Systems Modeling and Analysis
- IEE7B2 Power Systems Laboratory
- IEE6O2 Introduction to Power Systems Laboratory
- IEE584 Electric Machinery Laboratory

Undergraduate Teaching Assistant

Jan 2014 – Aug 2014

- IEE7B2 Electric Power Systems Laboratory
- IEE6O2 Introduction to Power Systems Laboratory
- IEE8S3 Protective Relaying Laboratory
- IEE584 Electric Machinery Laboratory
- Recitations: Power Systems Analysis, Power Systems Operations, and Power Systems Stability

The Ohio State University

Invited Lecturer

Spring 2018, Autumn 2022

- ISE 5225 Electricity Market Analytics
- ECE 7843 Advanced Topics in Power Systems

Research Mentoring

Purdue University

2023 – 2025

- Asha Ramanujam - Ph.D. student
- Hao Chen - Ph.D. student
- André Quisaguano - Undergraduate student
- Anderson Anrrango - Undergraduate student
- Gabriel Zufferey - Undergraduate student
- Kevin Solano - Undergraduate student

The Ohio State University

2018 – 2022

- Peimeng Guan - Undergraduate student (Now a Ph.D. student at Georgia Tech)
- Zachary O'Toole - M.Sc. student
- Jorge Ramírez - Ph.D. student
- Xuan Liu - Ph.D. student

Conference presentations

INFORMS Annual Meeting, Atlanta, GA, USA	Oct 2025
<i>"Learning to Tune Low-Fidelity Surrogates for Graph-Structured Optimization Problems with One Training Sample"</i>	
INFORMS Annual Meeting, Seattle, WA, USA	Oct 2024
<i>"AC-Network-Informed DC Optimal Power Flow for Electricity Markets"</i>	
AICHE Annual Meeting, San Diego, CA, USA	Oct 2024
<i>"Physics-Informed Neural Networks with Hard Linear Equality Constraints"</i>	
<i>"GPU Accelerated Approximation Algorithm for Multi-Parametric Linear Programming"</i>	
<i>"Diagnosing Infeasible Optimization Problems Using Large Language Models"</i>	
IEEE PES General Meeting, Seattle, WA, USA	Jul 2024
<i>"Scheduling of Generating Units via Relaxation and Decomposition"</i>	
International Conference on Stochastic Programming (ICSP), Davis, CA, USA	Jul 2023
<i>"Security-constrained unit commitment problem via a hybrid decomposition technique with Kron reduction"</i>	
Clemson University Power Systems Conference, Clemson, SC, USA	Sep 2018
<i>"Hierarchical mechanism of voltage instability with active distribution networks"</i>	
Transportation Electrification Conference and Expo (ITEC), Long Beach, CA, USA	Jun 2018
<i>"Visualizing the impact of PEV on power distribution grids"</i>	
IEEE/IAS 53rd I&CPS Technical Conference, Niagara Falls, ON, Canada	May 2017
<i>"Data-driven probabilistic power flow analysis for a distribution system with renewable energy sources using MCS"</i>	

Invited Talks

Iowa State University, IA, USA (remote)	Feb 2026
<i>"Integrating Machine Learning for Safe and Sustainable Power System Operation"</i>	
INFORMS Annual Meeting, Phoenix, AZ, USA	Oct 2023
<i>"Learning Convex Approximations for the AC-OPF with Zero-Injection Feasibility Guarantees"</i>	
IEEE PES General Meeting 2022, Denver, CO, USA	July 2022
Panel: Frontier of Power System Optimization and Simulation,	
<i>"AC Network-Constrained Unit Commitment via Relaxation and Decomposition"</i>	
Panel: Managing Uncertainty in Grid Operations,	
<i>"A Grid that is Risk Aware for Clean Electricity"</i>	
INFORMS/ENRE Online Scientific Event Series	Mar 2021
<i>"AC Unit Commitment"</i>	

Professional activities

PROPOSAL REVIEWER

Fulbright Commission in Slovakia 2025
Review and evaluate project proposals for candidates to the Fulbright Visiting Scholar Program.

SELECTION COMMITTEE

Fulbright Commission in Ecuador 2020 – 2022
Interview the candidates on STEM programs and evaluate their application, letters of reference, essays, and transcripts.

TECHNICAL PAPERS REVIEW (> 50)

Journals: Nature Communications, IEEE Transactions on Smart Grid, IEEE Transactions on Power Systems, IEEE Transactions on Industry Applications, IEEE Transactions on Power Delivery, IEEE Transactions on Sustainable Energy, IEEE Control Systems Letters, IEEE Power Engineering Letters, Applied Energy, International Journal of Power & Energy Systems, IEEE Transactions on Sustainable Energy, Optimization and Engineering

Conferences: IEEE PES General Meeting, Clemson University Power Systems Conference, Power Systems Computation Conference

CONFERENCE ORGANIZATION

Session Chair, INFORMS Annual Meeting, 2024 - 2025

SOCIETY MEMBERSHIPS

Institute for Electrical and Electronics Engineers (IEEE) 2014 – present

Member: Power and Energy Society, Industry Applications Society

INFORMS 2023 – present

Member: Energy, Natural Resources, and the Environment

Skills

Programming languages: Python, Julia, MATLAB

Algebraic modeling languages for optimization: JuMP, Pyomo, GAMS

Software: MATLAB/Simulink, DIgSILENT PowerFactory

Last update: September 16, 2026