

# Gonzalo E. Constante Flores

Assistant Professor

Department of Electrical, Computer and Energy Engineering  
University of Colorado Boulder  
ECOT 347, Boulder, CO 80309

+1 (614) 816 6649

<https://gconstantef.github.io/>

[gonzalo.constantef@colorado.edu](mailto:gonzalo.constantef@colorado.edu)

## 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

---

*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*

*2014*

Vice Presidency of Ecuador

## 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 May 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

## Mentoring

---

*Purdue University*

*2023 – present*

- 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*

*"Learning to Tune Low-Fidelity Surrogates for Graph-Structured Optimization Problems with One Training Sample"*

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

## Invited Talks

---

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

## 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, DgSILENT PowerFactory

Last update: *May 25, 2026*