

Gilberto Díaz-García

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Research Interest

Design & Analysis of Large-Scale Systems, Distributed Control, Game Theory and its Control Engineering Applications.

Education

University of Los Andes

M.Sc. IN ELECTRONIC AND COMPUTER ENGINEERING (*Cum Laude*, GPA: 4.86/5.0)

Thesis: "Resilient Synchronization of Multi-agent Systems: A Game Theoretical Approach".

Advisor: Luis Felipe Giraldo.

Bogotá, Colombia

2018–2020

University of Los Andes

B.Sc. IN ELECTRONIC ENGINEERING (GPA: 4.4/5.0)

Bogotá, Colombia

2014–2018

University of Los Andes

MINOR IN COMPUTATIONAL MATHEMATICS

A structured interdisciplinary option with undergraduate courses in Computers and Systems Engineering and Mathematics.

Bogotá, Colombia

2014–2018

Publications

- **G. Díaz-García**, G. Narváez, L. F. Giraldo, J. Giraldo, and A. A. Cardenas, "Resilient structural sparsity in the design of consensus networks," *IEEE Transactions on Cybernetics*, 2021
- **G. Díaz-García**, D. Guatibonza, and L. F. Giraldo, "Distributed reconfiguration for resilient synchronization of multi-agent systems," *IEEE Access*, vol. 9, pp. 140 235–140 247, 2021
- **G. Díaz-García**, C. A. Uribe, and N. Quijano, "Population Dynamics for Discrete Wasserstein Gradient Flows over Networks," in *International Conference on Machine Learning Conference: LatinX in AI (LXAI) Research Workshop. [Oral Presentation]*, 2021, Virtual
- J. Martinez-Piazuelo, **G. Díaz-García**, N. Quijano, and L. F. Giraldo, "Distributed Formation Control of Mobile Robots using Discrete-Time Distributed Population Dynamics," 2, vol. 53, Elsevier, 2020, pp. 3131–3136
- A. F. Zambrano, **G. Díaz-García**, S. Ramírez, L. F. Giraldo, H. Gonzalez-Villasanti, M. T. Perdomo, I. D. Hernández, and J. M. Godoy, "Donation networks in underprivileged communities," *IEEE Transactions on Computational Social Systems*, pp. 1–10, 2020
- **G. Díaz-García**, L. Burbano, N. Quijano, and L. F. Giraldo, "Distributed MPC and Potential Game Controller for Consensus in Multiple Differential-Drive Robots," in *Proceedings of the 2019 IEEE 4th Colombian Conference on Automatic Control (CCAC)*, IEEE, 2019, pp. 1–6
- **G. Díaz-García**, L. F. Giraldo, and S. Jimenez, "Dynamics of a Differential Wheeled Robot: Control and Trajectory Error Bound," in *2021 IEEE 5th Colombian Conference on Automatic Control (CCAC)* (**Accepted**)
- J. Martinez-Piazuelo, **G. Díaz-García**, N. Quijano, and L. F. Giraldo, "Discrete-Time Distributed Population Dynamics for Optimization and Control," in *IEEE Transactions on Systems, Man and Cybernetics: Systems* (**Submitted**)

Teaching Experience

Graduate Teaching Assistanship

CONTROL SYSTEMS ANALYSIS

University of Los Andes

Bogotá, Colombia

Aug 2018 – Nov 2018

Graduate Teaching Assistanship

STOCHASTIC PROCESSES

University of Los Andes

Bogotá, Colombia

Jan 2018 – Jun 2018

Graduate Teaching Assistanship

OPTIMIZATION

University of Los Andes

Bogotá, Colombia

Jan 2018 – Jun 2018

Undergraduate Teaching Assistanship

COURSE ON SCIENTIFIC COMPUTING FOR ENGINEERING

University of Los Andes

Bogotá, Colombia

Aug 2017 – Nov 2017

Undergraduate Teaching Assistanship

CONTROL SYSTEMS ANALYSIS

University of Los Andes

Bogotá, Colombia

Aug 2016 – Nov 2017

Undergraduate Teaching Assistanship

ALGORITHMIC AND OBJECT ORIENTED PROGRAMMING II (HONORS)

University of Los Andes

Bogotá, Colombia

Aug 2016 – Nov 2016

Undergraduate Teaching Assistanship

ALGORITHMIC AND OBJECT ORIENTED PROGRAMMING I

University of Los Andes

Bogotá, Colombia

Jan 2015 – Jun 2016, Jan 2017 – Jun 2017

Research Experience

Research Assistanship

COMPUTATIONAL MODELS OF COOPERATION IN UNDERPRIVILEGED COMMUNITIES

University of Los Andes. Funded through Google Latin America Research Awards.

Bogotá, Colombia

Jan 2019 – Nov 2020

Reviewing Experience

International Journals

- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Systems, Man and Cybernetics: Systems
- IEEE Transactions on Cybernetics

International Conferences

- IEEE Colombian Conference on Automatic Control, 2019
- IFAC World Congress, 2020
- IEEE Conference on Control Technology and Applications, 2020

Academic Awards & Honors

M.Sc. in Electronic and Computer Engineering Cum Laude Honor

UNIVERSITY OF LOS ANDES

Honor for high academic performance. Top 3% GPA in M.Sc. in Electronic and Computer Engineering class for the past five years.

Bogotá, Colombia

Mar 2020

Google Latin America Research Awards

GOOGLE LATIN AMERICA

Project: "Computational Models of Cooperation in Underprivileged Communities".

Bello Horizonte, Brazil

Nov 2018 & Nov 2019

"Bachilleres Por Colombia - Mario Galán Gómez" Award

ECOPETROL S.A.

Scholarship for undergraduate studies in Colombia. Award for the best high school students in Colombia.

Bogotá, Colombia

Sept 2013

"Los Mejores en Educación" Award

MINISTRY OF EDUCATION

Award for the high school students with higher grades in ICES national test in Colombia.

Bogotá, Colombia

Dic 2012

Additional Skills

Languages English (Fluent), Spanish (Native)

Programming Languages Matlab & Simulink, Python, Java, C++