Evanns Morales-Cuadrado

U.S. Citizen

Robotics PhD Student
Georgia Institute of Technology

CONTACT

Email: evannsmc@gmail.com **Github:** https://github.com/evannsm
Research Website: https://www.evannsmc.com/
LinkedIn: https://www.linkedin.com/in/evanns-morales/

TECHNICAL SKILLS

- **Programming Languages:** Python, C/C++, Matlab/Simulink
- **Frameworks & Libraries:** JAX, PyTorch, acados, CasADi, ROS 2, PX4, ArduPilot
- **Development & DevOps Tools:** Docker, Continuous Integration, Git/GitHub
- **Hardware & Experimentation:** UAV assembly, repair, and deployment
- **Motion-Capture:** OptiTrack and Vicon
- **Languages:** Spanish (Native), English (Native)

EDUCATION

Georgia Institute of Technology | 2022-2027
Ph.D. in Robotics
- GPA: 4.0/4.0
- Advisor: Dr. Samuel Coogan
- Goizueta Fellow

University of Texas at Arlington | 2018-2022
Honors Bachelor of Science in Electrical Engineering
Minor in Mathematics
Minor in Physics
Certificate in Unmanned Vehicle Systems
- GPA: 3.9/4.0 Summa Cum laude
- Full National Merit Scholarship Awarded
- Electrical Engineering Honors Scholar

WORK EXPERIENCE

Graduate Research Assistant | FACTS Lab — August 2022 - Present
Georgia Institute of Technology — Atlanta, GA
- Advised by Dr. Samuel Coogan
- Implemented novel aggressive tracking control methods on quadrotor hardware
- Developed novel nonlinear control methods for safe autonomy
- Published and presented novel research at top conferences and journals in the fields of robotics and control theory

Teaching Assistant | Vertically Integrated Project in Robotics — January 2024 - Present
Georgia Institute of Technology — Atlanta, GA
- Aided professor in his instruction of this research-based course
- Provided promising undergraduates with guidance performing applied research in the field of robotics
- Taught control theoretical concepts in an accessible manner for undergraduates

Research Assistant | Autonomous Systems Lab — November 2021 - May 2022
University of Texas at Arlington — Arlington, TX
- Advised by Dr. Frank Lewis
- Received personal mentorship from a leading researcher in the field of controls and reinforcement learning (ranked 12^{th} in the USA and 23^{rd} in the world during my time in his lab)
- Aided graduate students on reinforcement learning research applied to quadrotor control

Teaching Assistant | Graduate-Level Intelligent Systems Course — January 2022 - May 2022
University of Texas at Arlington — Arlington, TX
- Aided professor in his instruction of the course
- Hosted review sessions for students in preparation for exams
- Gained teaching experience in a graduate-level course while still an undergraduate

Research Assistant | Dynamical Networks and Control Lab — October 2019 - May 2022
University of Texas at Arlington — Arlington, TX

- Advised by Dr. Yan Wan
- Gained experience with Robot Operating System (ROS), OpenCV, and path planning
- Original research in learning-based minimum time and energy path-planning for multi-vehicle systems

SELECTED PUBLICATIONS

E. Morales-Cuadrado, C. Llanes, Y. Wardi and S. Coogan, "Newton-Raphson Flow for Aggressive Quadrotor Tracking Control." *2024 American Control Conference (ACC)*

L. Baird, **E. Morales-Cuadrado**, and S. Coogan, "Runtime Assurance for Uncertain Systems from Interval Signal Temporal Logic." Submitted to IEEE Transactions on Robotics. *(under revision)*

E. Morales-Cuadrado, L. Baird, Y. Wardi and S. Coogan, "Lightweight Tracking Control for Computationally Constrained Aerial Systems with the Newton-Raphson Method." Submitted to IEEE Transactions on Control Systems Technology. *arXiv preprint available. (under revision)*

RESEARCH INTERESTS

- Safe Autonomy
- Hardware Deployment
- Unmanned Ground and Aerial Vehicles
- Advanced Nonlinear Control
- Learning-Based Control
- Trajectory Generation and Planning

OPEN-SOURCE CONTRIBUTIONS

- **PX4 Autopilot:** Contributed documentation improvements to the official PX4 Autopilot manual.
- **Vicon4PX4:** Developed and open-sourced a ROS 2 C++ Vicon–PX4 interface enabling external vision fusion for indoor quadrotor flight experiments; adopted and showcased by Georgia Tech's Indoor Flight Lab as part of its official codebase. Also created a parallel package for OptiTrack motion capture systems.

SERVICE

Co-Founder and President of Puerto Rican Student Association — August 2024 - Present
Georgia Institute of Technology — Atlanta, GA

- Addressed the need for an organization to help Puerto Rican students feel at home and stay connected to our culture
- Formed a three-member co-founder board and identified a faculty advisor
- Raised funds for the organization and recruited members from campus
- Hosted professional, social, and cultural events to meet the needs of the growing Puerto Rican student population at Georgia Tech

HONORS AND AWARDS

Top-3 Finalist at a Deep Learning Research Symposium — November 2023
Professor-sponsored award for novel research in deep learning and robotics

Goizueta Fellowship at Georgia Tech — August 2022
Highly selective fellowship for graduate students of Latin-American descent

Summa Cum Laude Honors at University of Texas at Arlington — May 2022
Exceptional academic distinction in top GPA tier for graduation honors

Electrical Engineering Honors Scholar at University of Texas at Arlington — December 2021
Inaugural member of the electrical engineering honors cohort

IEEE-HKN International Electrical Engineering Honor Society Membership — August 2021
Selective undergraduate society recognizing outstanding academic achievement and community service

Chance Vought Engineering and Science Endowment Scholarship — August 2020
Highly selective award given annually to three recipients across the entire College of Engineering

National Hispanic Scholar — March 2018
Recognition of top national performers of Latin descent on the SAT

National Merit Scholar — March 2018
Recognition of top national performers on the SAT