

CONTACT

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RESEARCH INTERESTS

- Safe Autonomy
- Advanced Nonlinear Control
- Trajectory Generation and Planning
- Learning-Based Control
- Reachability Analysis
- Development from Simulation to Hardware

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

RELEVANT WORK EXPERIENCE

Graduate Research Assistant at FACTS Lab

August 2022 – Present
Atlanta, GA

Georgia Institute of Technology

- Advised by Dr. Samuel Coogan
- Implement novel aggressive tracking control methods on quadrotor hardware
- Develop novel nonlinear control methods for safe autonomy
- Publish and present novel research at reputable conferences and journals in the fields of robotics and controls

Teaching Assistant for Graduate-Level Course in Intelligent Systems

January 2022 – May 2022
Arlington, TX

University of Texas at Arlington, Arlington, TX

- Graduate-level teaching assistant as an undergraduate student
- Aid professor in his instruction of the course
- Host review sessions for students in preparation for exams
- Grade homeworks, exams, and projects

Research Assistant at Pulsed Power & Energy Lab

November 2021 – May 2022
Arlington, TX

University of Texas at Arlington, Arlington, TX

- Assist lab in projects related to my areas of expertise in system identification and control
- Gain experience in power electronics, microgrids, power delivery systems, and energy storage
- Begin working relationships with contacts and sponsors in the US Navy and the Office of Naval Research (ONR) who primarily commission the lab's projects

Research Assistant at Autonomous Systems Lab
University of Texas at Arlington, Arlington, TX

March 2021 – May 2022
Arlington, TX

- Advised by Dr. Frank Lewis
- Learned quadrotor dynamics and software for applied research
- Aid graduate students on reinforcement learning research applied to quadrotor control

Research Assistant at Dynamical Networks and Control Lab
University of Texas at Arlington, Arlington, TX

October 2019 – May 2022
Arlington, TX

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

PUBLICATIONS

E. Morales-Cuadrado, C. Llanes, Y. Wardi and S. Coogan, "Newton-Raphson Flow for Aggressive Quadrotor Tracking Control," 2024 American Control Conference (ACC), Toronto, ON, Canada, 2024, pp. 3879–3884, doi: 10.23919/ACC60939.2024.10644692.

SKILLS

- Technical Skills**
- Robot Operating System
 - Python
 - C/C++
 - PX4 Flight Stack
 - Hardware UAV building and repair
 - MATLAB/Simulink
 - Motion Capture: Optitrack/Vicon
- Languages**
- Spanish (Native)
 - English (Native)
 - French (Self-Taught to C1-Level Proficiency CEFR)
 - Portuguese (self taught to reading proficiency)

SERVICE

Co-Founder and Vice President of Puerto Rican Student Association
Georgia Institute of Technology

August 2024 – Present

- Saw a need for an organization to make Puerto Rican students feel at home and remain connected to our culture and traditions
- 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 unique needs of Puerto Rican students

Vertically Integrated Project Student Assistant and TA
Georgia Institute of Technology

August 2024 – Present

- Aid promising undergraduate students begin their journey in the field of robotics
- Provide guidance on theoretical understanding of controls concepts
- Provide hands-on mentoring in hardware implementation

Undergraduate Research Mentor
Georgia Institute of Technology

August 2021 – May 2022

- As the lead undergraduate student Dr. Frank Lewis' Autonomous Systems Lab, I mentored younger undergrads in controls research and guided them on a research project in ground vehicle control
- Guided students in Robot Operating System, Python, Linux, and Control Systems

Eta Kappa Nu– Public Relations Chair

August 2020 – May 2022

Georgia Institute of Technology

- Executive board member of UT Arlington’s IEEE–HKN chapter
- In charge of social media advertising for honor society’s events and outreach initiatives to the electrical engineering student body

Eta Kappa Nu– Circuits I Tutor

August 2020 – May 2022

Georgia Institute of Technology

- Volunteered to provide free tutoring as a service to electrical engineering students in the Circuits I course

HONORS AND AWARDS

Top–3 Finalist at Deep Learning Research Symposium in CS7643 at Georgia Tech 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
Arlington, TX

Honors College Degree Requirements at University of Texas at Arlington December 2021
Completed research projects in disparate fields throughout my undergraduate career with various professors and defended a senior capstone research project before the Honors College committee

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
Joined in first year of eligibility. Honors society for electrical engineering undergraduate juniors and seniors with a history academic and volunteering achievement

Research Experience for Undergraduates Fellowship Recipient August 2020
Fellowship to sponsor promising young undergraduate researchers

Chance Vought Engineering and Science Endowment Scholarship August 2020
Yearly scholarship for one sophomore, one junior, and one senior student in Engineering at University of Texas at Arlington

Toray Composite Materials America Inc. Sons and Daughters Scholarship May 2019
Academic scholarship awarded children of employees of Toray America

James E. Casey Scholarship Recipient January 2019
Academic scholarship awarded children of employees of UPS

James R. Hoffa Memorial Scholarship Recipient May 2018
Academic scholarship awarded children of Teamsters Union Members

Grapevine, TX Rotary Club Scholarship Recipient May 2018
Local rotary club scholarship for academic and civically–minded scholars

National Hispanic Recognition Program March 2018
Recognition of top national performers of Latin descent on the SAT and Pre–SAT

National Merit Scholar March 2018
Recognition of top national performers on the SAT on the SAT and Pre–SAT