Carlos Carrasquillo

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Education

Georgia Institute of Technology | GPA: 4.0 / 4.0 — **Aug 2021 – Present**

- PhD, *Robotics* — Expected May 2026
  - Grad REACH Scholar — August 2024 – Current
  - Pathbreakers Fellow (formerly University Center for Exemplary Mentoring) — August 2023 – Current
  - NDSEG Fellow — August 2022 – Current
- Master of Science, *Computer Science*, Machine Learning Specialization — Expected May 2025
- Master of Science, *Aerospace Engineering* — Expected May 2025

University of Florida | GPA: 3.68 / 4.0 — **Aug 2017 – May 2021**

- Bachelor of Science, *Mechanical Engineering*, Magna Cum Laude Honors — May 2021
- Bachelor of Science, *Computer Engineering*, Magna Cum Laude Honors — May 2021

Experience

Graduate Research Assistant | Georgia Institute of Technology, Institute for Robotics and Intelligent Machines — **Aug 2021 – Current**

Advisors: Anirban Mazumdar, PhD, Aaron Young, PhD

- *Generalized Exoskeleton Control*: Creating an energetically optimal exoskeleton torque controller that generalizes across tasks.
- *Exoskeleton Navigation*: Designed LiDAR-based scanner and exoskeleton controller to help humans navigate around obstacles in low visibility environments using force-feedback [J3], [C3].

Computer Science / Mechanical Engineering Intern | Raytheon Intelligence & Space — **May 2021 – May 2022**

- *Web App Development*: Fully developed a web application to find components on a PCB by search and mouseover. MERN Stack.
- *Database Management*: Created five Splunk dashboards and ~10 process programs for production-grade machinery.
- *Local App Development*: Wrote a desktop application to log and track material testing using VBA.

Undergraduate Research Assistant | University of Florida Dept. of Mechanical and Aerospace Engineering — **Jan 2019 – Aug 2021**

Advisor: Riccardo Bevilacqua, PhD

- *Embedded Programming*: Wrote custom C++ libraries for the D3 CubeSat's IMU, antenna, radio, and GPS aboard a BeagleBone [C1].
- *Communications:* Developed C++ radio framework to enable data uplink/downlink and implemented command & data handling logic [C2].

Undergraduate Teaching Assistant | University of Florida Dept. of Mechanical and Aerospace Engineering — **May 2019 – May 2021**

- Design and Manufacturing Lab (6 semesters), Dynamics and Controls Lab (1 semester), Thermal Systems and Design Lab (1 semester), Numerical Methods (2 semesters)

Select Research Papers

[C3] **C. Carrasquillo,** A. Young, A. Mazumdar. "Intuitive Steering Assistance from a Wearable Robotic Assistive System for Visually Impaired Navigation". International Conference on Robotics and Automation. 2024. (Submitted)

[J3] **C. Carrasquillo,** A. Bajpai, D. Iyengar, K. Collins, A. Mazumdar, A. Young. "Enhancing Human Navigation Ability Using Force-Feedback from a Lower-Limb Exoskeleton". IEEE Transactions on Haptics. 2024. (Submitted)

[J2] **C. Carrasquillo**, S. Zhou, W. L. Childers, A. Young, K. Herrin. "A Clinical Decision-Making Algorithm for the Personalized Prescription of Microprocessor-Controlled Prosthetic Knees: An Evidence-Based Approach based on a Randomized Trial". Prosthetics and Orthotics International. 2024. (Submitted)

[J1] A. Bajpai, **C. Carrasquillo**, J. Carlson, J. Park, D. Iyengar, K. Herrin, A. Young, A. Mazumdar. "Design and Validation of a Versatile High Torque Quasi-Direct Drive Hip Exoskeleton". IEEE Transactions on Mechatronics. 2023.

[C2] **C. Carrasquillo**. "A Versatile and Open-Source Radio Framework for the D3 CubeSat Mission". Small Satellite Conference. 2021. Student Competition Best Paper Honorable Mention.

[C1] S. Buckner, **C. Carrasquillo**, M. Elosegui, R. Bevilacqua. "A Novel Approach to CubeSat Flight Software Development Using Robot Operating System (ROS)". Small Satellite Conference. 2020. Technical Poster Presentation.

Skills

- *Certifications*: Amateur Radio Technician (2019), SOLIDWORKS Associate (2019), Student Pilot (60+ hours), PADI Open Water Diver
- *CAD*: SolidWorks (CAD, FEA), Fusion 360 (CAD, CAM), Inventor (CAD)
- *Programming Languages*: Arduino, C/C++, C#, Java, JavaScript, LabVIEW, MATLAB, Python, Simulink, VBA, VHDL
- *Python Libraries:* Gymnasium, Keras, NumPy, OpenCV, OpenMDAO, Pandas, PyGame, PyTorch, ROS, TensorFlow, Tkinter
- *Technical Software*: Altium Designer, LaTeX, Linux, LTSpice, MERN Stack, ROS, Splunk, SPSS, Unity, Vicon
- *Prototyping*: Lathes, Mills, Waterjets, Welding, Oscilloscopes, Waveform Generators, 3D Printing, etc.
- *Personal Projects*: 12-DOF quadruped robot, 3D bioprinter, desktop lathe, MIPS CPU, websites
- *Languages:* English and Spanish