Carlos A. Carrasquillo Torres

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Education

Georgia Institute of Technology | GPA: 3.9 / 4.0 — **Aug 2021 – Present**

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

University of Florida | GPA: 3.7 / 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

- Led the design and development, of exoskeleton controllers and mechatronic systems for human navigation, mobility, and injury reduction.
- Performed human-subject experiments using motion capture, EMG, and metabolics to validate exoskeleton hardware and controllers.

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

- Developed a MERN stack web application to help engineers find components on printed circuit boards by search and mouseover.
- Engineered a VBA-based desktop application to automate the logging and tracking of material testing data, replacing a manual process.

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

Advisor: Riccardo Bevilacqua, PhD

- Developed embedded C++ avionics software for the D3 CubeSat, creating custom libraries to interface with the satellite's sensors [C1, C2].
- Engineered a ground station application in Python to transmit telecommands and receiving downlinked data from the satellite.

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

- *Design and Manufacturing Lab (6X)*: Taught >30 students on design for manufacturing principles and usage of machine shop equipment.
- *Dynamics and Controls Lab (1X)*: Lectured to >50 students on applying classical control theory to real-world systems.
- *Thermal Systems and Design Lab (1X)*: Guided student teams in designing mathematical models for internal combustion engines.
- *Numerical Methods (2X)*: Lectured on iterative algorithms, linear algebra, Fourier analysis and held routine office hours.

Select Publications

[J4] K. L. Scherpereel, M. C. Gombolay, M. K. Shepherd, **C. A. Carrasquillo**, O. T. Inan, A. J. Young. "Deep Domain Adaptation Eliminates Costly Data Required for Task-Agnostic Wearable Robotic Control". Science Robotics. 2025. (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. 2025.

[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. 2025.

[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. Poster Presentation.

Skills

- *Design & Manufacturing*: Altium Designer (PCB), SolidWorks (CAD, FEA), Fusion 360 (CAD/CAM), Machine Shop Equipment (Lathes, Mills, CNC, Welding), Rapid Prototyping
- *Programming*: Python (NumPy, Pandas, OpenCV, PyTorch, TensorFlow, ROS, OpenMDAO), C/C++, C# (Unity), JavaScript (React.js), MATLAB, Simulink, VBA, VHDL
- *Experimentation:* AR/VR, Electromyography, Metabolics (COSMED, Parvo), Motion Capture (Vicon), OpenSim
- *Personal Projects*: 12-DOF quadruped robot, 3D bioprinter, desktop lathe, MIPS CPU, 5+ websites
- *Certifications:* Amateur Radio Technician (KN4ZUC), SOLIDWORKS Associate (2020), Student Pilot (90+ hours), Open Water Diver
- *Languages:* English and Spanish