

[PhD Candidate](#)

[Neuromechanics Lab](#)

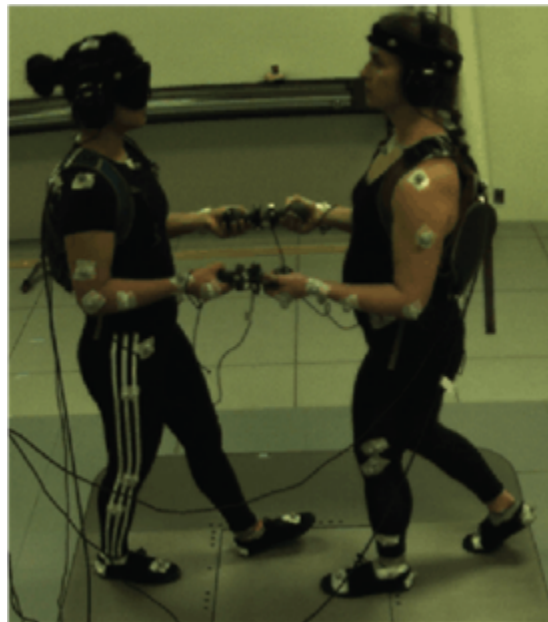
[Biomedical Engineering](#)

Emory University and Georgia Institute of Technology

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Bio / Areas of interest

I am interested in how **haptic communication** - the use of physical contact to transmit information - facilitates collaboration between people and between a person and a robot. My research focuses on characterizing how **hand contact affects walking** and balance in **human-human** and **human-robot** interaction. I have developed a novel robotic device that emulates a wide range of hand interactions during walking, inspired by human-human examples like a caregiver assisting a patient and partner dancing. I analyze motion capture and force sensor data to understand strategies for communicating when and how to move through touch. In the future, I hope to incorporate also EEG and EMG data. My unique perspective on human movement is influenced by my experiences in the fields of haptics, human-robot interaction, gait and lower-limb biomechanics, and dance.



An expert partner dancer (right) alters the walking of a novice (left) using hand interactions



Participant holding the human-robot interaction emulator, “Slidey”

This research contributes to scientific understanding of low-force control strategies that rely on human **sensorimotor engagement** to alter walking. This work has direct applications to design of robot controllers for assistive technology and physical rehabilitation (e.g. robotic canes and walkers), human-robot manufacturing (e.g. teleoperation and collaborative load-carrying), physical education (e.g. teaching movement skills, dance, and sports), and recreation (e.g. next-generation gaming that includes full-body movement). Principles of how haptic communication affects whole-body movement have the potential to improve human walking, enhance physical collaborations between humans and robots, and facilitate the performance of novel tasks not previously possible with human partners.

| feedback |

[participants are invited to leave your **name** with your **feedback below**]