Esteban **Flores**

MS Student in Robotics

Zurich, Switzerland

(301) 968-5082 flores.esteban2718@gmail.com Esteban Flores https://estebanflores001.github.io/

Education

ETH Zurich — Zurich, CH

M.S. in Robotics, Systems, and Control — 2025 – Present

Georgia Institute of Technology — Atlanta, GA

B.S. in Mechanical Engineering; GPA 3.9 / 4.0 — 2021 – December 2024

- Provost Scholarship (40 selected out of 3000)
- Dean's List and Faculty Honors

Ramstein High School — Ramstein, Germany

High School Diploma; GPA 4.0 / 4.0 — May 2021

- Valedictorian (1st of 180 students)

Research Experience

Complex Rheology and Biomechanics (CRAB) Lab — Georgia Institute of Technology

Undergraduate Researcher (PI: Prof. Daniel Goldman) — 2022 – 2024

- Modeled, machined, and assembled a 1-meter, 5-segment centipede robot capable of traveling 0.35 body lengths per second to study steering via traveling-wave superposition.
- Programmed and characterized geometric-mechanics-based steering gaits for centipede robots, leading to acceptances to IROS, SICB, and APS conferences.
- Designed compliant foot sensors for proportional and reinforcement-learning controllers to improve locomotion on rough terrain.

Professional Experience

Ground Control Robotics LLC — Atlanta, GA

Robotics Intern — Jan – July 2025

- Implemented closed-loop path following on multi-legged robotic platforms using Linux and Python
- Developed the software suite for control (IMU, GPS, camera, servo systems) and autonomy currently used on all commercial and research models
- Modeled robot virtual twin in MuJoCo used in gait optimization via bayesian optimization
- Tested various algorithms in locomotion and manipulation tasks resulting in a variety of autonomous behaviors (automatic fall recovery, laser targeting, step detection and climbing, point-to-point locomotion)

Zipline International Inc. — South San Francisco, CA

Ground Systems Test Intern — Aug – Dec 2023

- Designed and instrumented system-level docking tests for drones, including high-load conditions (>5000 N).
- Developed Python/Rust tools for GNSS phase windup correction to reduce position drift.
- Built data acquisition system to synchronize multi-rate sensors (200–10 000 Hz) to captue docking dynamics.
- Processed 3D motion-capture data to correlate docking velocity and impact loads.

Forterra — San Antonio, TX

Mechanical Engineering Intern — May – Aug 2023

- Designed custom sensor mounts for a Class 8 truck with lidar, radar, and camera arrays; optimized sensor FOV coverage.
- Performed FEA and hand calculations to validate mounts for vibration and structural integrity (MIL-STD-810).

Skills

Professional — Experimental setup, Mechatronics, Robotic control, Mechanical design, Materials testing, Motion capture, GNSS systems

Software — Python, MATLAB, Linux, C++, Docker, MuJoCo

Design & Analysis SolidWorks, Siemens NX, ANSYS Mechanical, Inventor, Inkscape

Manufacturing Additive (FDM, SLS, PolyJet), Carbon composites (pre-preg, wet layup), Metal machining (lathe, mill, laser), Woodworking

Languages English (Native), Spanish (Conversational)

Extracurriculars

Georgia Tech Solar Racing Atlanta, GA

Mechanical & Suspension Lead 2021 – 2023

- Led 30+ engineers in design and fabrication of a multi-occupant solar vehicle for the American Solar Challenge.
- Directed 4 mechanical sub-teams and coordinated integration with electrical and strategy divisions.

Georgia Tech Beekeeping Club Atlanta, GA

Lead Beekeeper 2022 – 2024

- Conducted weekly hive inspections and trained members in honey extraction and pest control.
- Managed wild swarm mitigation for campus safety.

Publications

Steering Elongate Multi-Legged Robots by Modulating Body Undulation Waves. *IROS 2025*

***E. Flores**, B. Chong, D. Soto, D. Goldman.*

Steering Multilegged Robots by Body Undulation Modulation. *SICB 2025*

***E. Flores**, B. Chong, D. Soto, D. Tatulescu, C. Pierce, D. Goldman.*

Probabilistic Approach to Feedback Control Enhances Multi-Legged Locomotion on Rugged Landscapes. *IEEE Transactions on Robotics 2025*

*J. He, B. Chong, J. Lin, Z. Xu, H. Bagheri, **E. Flores**, D. Goldman.*

A Geometric Phase Approach to Body-Driven Steering in Multi-Legged Robots. *APS March Meeting 2025*

***E. Flores**, B. Chong, D. Soto, D. Goldman.*

Tactile Feedback Enhances Multi-Legged Matter Transport on Rugged Landscapes. *SICB 2024*

*J. He, B. Chong, **E. Flores**, Z. Xu, D. Soto, D. Goldman.*