

# Matthew Fernandez

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## EDUCATION

**Georgia Institute of Technology** – Atlanta (GA)

*August 2021 – December 2025*

Bachelor of Science in Mechanical Engineering; Robotics Minor

GPA: 4.00/4.00

## RESEARCH

**Complex Rheology and Biomechanics Lab** | Georgia Tech (US)

*August 2023 – Present*

- Leading the design and testing of an amphibious undulatory limbless robot investigating the role of mechanical intelligence in underwater obstacle navigation (**patent submitted**)

**Soft Robotics Lab** | ETH Zurich (Switzerland)

*May 2025 – Present*

- Leading the development of an autonomous untethered fish platform for marine surveillance, exploring novel actuation techniques and hydrodynamic optimization for fluent locomotion

**Fabrication Integrated Design Lab** | MIT (US)

*June 2024 – December 2024*

- Designed and tested a monopropellant driven oscillatory robot for untethered energy efficient locomotion using hydrogen peroxide decomposition.

### Presentations and Publications

- 4x Peer-reviewed publications (ICRA 2025, Robosoft 2025, ICRA 2024)
- 6x Conference abstracts (APS 2025, SICB 2025, APS 2024)
- 7x Research presentations (ICRA 2025, APS 2025, SICB 2025, MIT MSRP 2024, ICRA 2024)

## PROFESSIONAL & PROJECT EXPERIENCE

**NASA Jet Propulsion Laboratory** | *Robotic Manipulation Intern*

*January 2023 – August 2023*

- Developed architecture and prototypes of an ultra-lightweight manipulation system on the Sample Recovery Helicopter (SRH) as part of the Mars Sample Return (MSR) mission
- Conceptualized and prototyped more than 8 unique end-effectors for mission concept proposals and testing

**Procter & Gamble** | *Manufacturing Process Engineering Intern*

*May 2022 – August 2022*

- Used SOLIDWORKS to design, optimize, and manufacture universal grippers enabling transport vehicles to grip multiple bottle sizes eliminating line stoppage and resulting in over \$100,000 in annual savings

**URC Mars Rover Team (Georgia Tech)** | *Mechanical Lead*

*September 2021 – July 2024*

- Led 25 engineers in the design and manufacture of a semi-autonomous rover for complex missions in simulated Martian terrain to compete in the University Rover Challenge
- Utilized SOLIDWORKS for the development of full carbon fiber-based rocker-bogie drive train and chassis, high-precision arm, manipulator, and scientific sampling device

**Antarctic Marine Vehicle** (Georgia Tech) | *Mechanical Lead*

*August 2022 – December 2022*

- Co-led the designing, prototyping, and manufacture of the next iteration Autonomous Underwater Vehicle (AUV) for observation of polar-cap degradation at the Antarctic grounding line

## AWARDS

- **ThinkSwiss Scholar**: 1 of 25 students selected internationally as a student researcher at a Swiss Institute
- **Astronaut Scholar** (ASF): 1 of 71 students nationwide for a merit-based research scholarship
- **Godbold Scholar** (Georgia Tech – Merit): 1 of 8 students in the Southeast selected for a full scholarship
- **Provost Scholar** (Georgia Tech – Merit): Top 1% of students selected for a waived tuition cost

## SKILLS

**Technical Software** | SOLIDWORKS, Siemens NX, Autodesk Inventor, Topological Opt., Fusion 360

**Hardware Experience** | FDM/SLA 3D-Printing, Waterjet, Laser-cutter, Soldering, Arduino, Raspberry Pi

**Programming** | MATLAB, Python, C++, ROS, Arduino, RSLogix