

Mateo Otero-Diaz

571-833-8661 | moterodiaz@olin.edu | in/mateo-otero-diaz | moterodiaz.me

Education

Olin College of Engineering

Needham, MA

Bachelor of Science — Mechanical Engineering GPA: 3.74

- Relevant Coursework: Fluid Dynamics, Thermodynamics, Heat Transfer, Dynamics, Algorithms, Control Theory, Statics, Mechanics of Solids

Experience

MIT Lincoln Laboratory

Westford, MA

Mechanical Design Intern, Group 09-92: Advanced Sensors and Techniques

May 2026 – Aug 2026

- Designed hydraulic and rigging systems for HUSIR and Millstone imaging radars in SolidWorks
- Procured COTS components and produced fabrication drawings for radar mechanical subsystems
- Rebuilt LSSC drawing database with new input methods and standardized numbering system

NASA Goddard Space Flight Center (GSFC)

Greenbelt, MD

Mechanical Design Intern, Mechanical Systems (GSFC-5430)

May 2025 – Aug 2025

- Designed Landsat Next star tracker mounting and support systems in Autodesk Inventor
- Integrated and Tested Venus Da Vinci probe metal seals; achieved exceptional leak rate of 10^{-11} cm³/s
- Assembled and tested optical titanium-sealed sapphire windows for the Venus Da Vinci probe

Mechanical Design Intern, Meta-materials (GSFC-5500)

Jun 2024 – Aug 2024

- Designed Model-T Deployable Telescope gearing train in Autodesk Inventor
- Validated gear material and design choices for torque and durability through Mathcad
- Reduced gear torque stress by 50% and output velocity by 500%, exceeding all project goals
- Keynote speaker on internship learnings at Space Club NASA luncheon

Projects

Red Ledger — Cal Hacks

San Francisco, CA, 2026

Adversarial sandbox for autonomous finance (2nd Place, CRS track, 3k+ participants)

- Built three autonomous AI agents using Factory's Droid SDK to simulate financial fraud attacks, defenses, and automated payments
- Deployed secure ledger testing environment on a Vultr VM behind Cloudflare to track real-time exploit metrics

Bro, Look at My Wheat (Fetty Wap Drone) — HackHarvard

Boston, MA, 2026

Autonomous drone project for Hack to the Moon Hackathon

- Developed a custom drone platform integrating hardware mounts and flight control systems
- Implemented software pipelines to enable autonomous operation and real-time telemetry processing

Gait AI — Babson Buildathon

Needham, MA, 2026

Winner, The 2026 Spring Generator Buildathon (500+ competitors from 30+ colleges)

- Built smart insole: FSR sensors, ESP32 BLE pipeline, and live Next.js gait coaching app in 5 hours
- Designed 3D-printed ankle enclosure, custom protoboard, and soldered ribbon cable harness

Perfume Gantry (Scent-o-Matic) — Formlabs IAP Hackathon

Cambridge, MA, 2026

Automated XY gantry and pipette system for custom perfume mixing; 6,748 unique scent profiles

- Designed XY gantry with servo-actuated pipette; characterized oil flow for precision dispensing
- Fabricated 3D-printed parts; integrated Raspberry Pi UI with Arduino motor control in 2.5 days

DroneGym — Founders, Inc. Night Hack III

San Francisco, CA, 2026

Grand Prize Winner, 127+ competing projects — built in 6 hours

- Built 250 Hz rigid-body drone physics engine deriving thrust and inertia from real prop, motor KV, and battery specs
- Implemented constant-velocity intercept-scenario training, a counter-UAS-style pursuit problem, for the PPO reinforcement-learning pipeline

Canary — YHack (Yale University)

New Haven, CT, 2026

3rd Place, ASUS Societal Impact Track | 4th Place, QNX Hardware Track

- Integrated Raspberry Pi, MQ gas sensors, and RealSense depth camera into a wearable safety vest
- Built Python hazard detection pipeline with live dashboard and tunnel gas-spread simulation

Awards/Clearances

- **SMART Scholarship (DoD, 2026)** — Full tuition, Healthcare & Stipend
- **Secret Security Clearance** — May 2026 (Active)
- **Top-Secret/SCI Clearance** — Expected January 2027 (In Adjudication)

Skills

- Mechanical Design: Siemens NX | ANSYS | PTC Mathcad | Autodesk Inventor | Autodesk Fusion | AutoCAD | SolidWorks | PTC Creo | MSC Adams | Siemens Simcenter | MSC Nastran
- Manufacturing: Metal Lathe | Laser Cutter | Plasma Cutter | FDM 3D-Printer | Metal Mill | Soldering | TIG Welding | Wood CNC Router | Sheet Metal | Resin 3D-Printer
- Programming: Python | C | Java | MATLAB | C++ | R
- Languages: Spanish (Native) | French (Fluent)