

FELIPE RIBEIRO

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EDUCATION

Bachelor of Science, Mechanical Engineering
University at Buffalo

Expected May 2027

TECHNICAL SKILLS

Robotics & Embedded: Arduino, Raspberry Pi, Motor/ESC integration, gimbal systems

Programming: MATLAB, C++, Excel

CAD & Analysis: Fusion360, SolidWorks, PrusaSlicer, AutoCAD

PROFESSIONAL EXPERIENCE

Electronics Lead, UB ASME — IAM3D 2026

August 2025 – Present

- Leading electronics integration for a 3D printed rover competition, evaluated on payload delivery effectiveness against competing colleges.
- Designed and wired a multi-battery power system, increasing rover motor performance by ~25% while regulating voltage for 6.25–8.25V high-torque servos.
- Programmed Arduino and ESP 32 to translate RC receiver signals to ESC-driven DC motors, servos, relays, and onboard subsystems.
- Built and integrated a servo-actuated excavator scoop system with FPV camera support, laser alignment assistance, and custom 3D-printed protective enclosures.

ENGINEERING PROJECTS

2-Axis Gimbal Stabilization System

March 2026

- Modeled and 3D-Printed a 2-axis gimbal system for a FPV camera using servo motors controlled via remote control
- Implemented specific filters like an EMA and deadline to optimize performance and allow the gimbal to be controlled smoothly.
- Modeled and printed custom 3D-printed gimbal frame with optimized geometry for low rotational inertia and balanced center of mass.

Self-Balancing Inverted Pendulum Robot

February 2026

- Designed a fully 3D-printed two-wheel inverted pendulum platform, optimizing center-of-mass placement and structural integrity to enable stabilization of an inherently unstable system.
- Developed a closed-loop control system on Arduino using MPU-based tilt estimation and a DRV8833 motor driver to achieve real-time balance and disturbance rejection.
- Created the whole chassis and wheel design in Fusion360 ensuring the system has enough rotational inertia to allow the gearbox motors enough time to react to keep the system upright

Servo-Actuated 2-DOF Excavator Payload Mechanism

January 2026

- Designed a fully 3D-printed excavator-style payload system in Fusion 360 with two actuated joints (elbow, wrist) for controlled object manipulation.
- Created 3D-printed bearings and gears for stabilized movement at each joint; integrated high-torque servos with bearing-supported pivot points to reduce friction.

ADDITIONAL WORK HISTORY

Infusion by Castles — Advertising Intern, Client Operations & Office Design

Aug 2022 – Sep 2024

New York, NY

- Managed and organized direct mail campaign files across multiple quarters, categorizing assets by market segment (International, AA, HS) for client access and review.
- Communicated directly with clients on campaign status, revisions, and delivery timelines, ensuring alignment between creative, production, and stakeholder teams.
- Led office layout redesign during company relocation, developing spatial plans and coordinating design decisions to support workflow efficiency and brand alignment.