MICHAEL REMLEY

MICHAELJREMLEY@GMAIL.COM **PORTFOLIO WEBSITE** **(801) 791-9495**

Education

Olin College of Engineering – Needham, MA — May 2022

- Bachelor of Science in **Electromechanical Engineering**; 3.96 GPA
- Recipient of 4-year, 50% tuition scholarship; **Honor Board Chair** FA20-Present.
- Massachusetts Space Grant Undergraduate Research Award – Fall 2021

Recent Courses: Thermodynamics, Design for Manufacturing, Computer Architecture, Microcontrollers for the Real World

Experience

Olin Satellite + Spectrum Technology & Policy (OSSTP) Group — June 2021 – Present

- Authoring, editing, and reviewing content for a real-world, **Analog/Digital Comms textbook** in Summer-Fall 2021 as a course assistant.
- Developed a MATLAB tool to validate interference mitigation compliance (**EPFDup**) of LEO satellites according to ITU Article 22 Regulations.

Research Assistant at Olin College — June 2020 – June 2021

- Developed a musical variation website stack. Includes UI/UX design, web security, framework design, **database** management, website deployment, and **user testing**.
- Designed a museum exhibit demonstrating chaotic systems via **interactive entertainment**.

Projects

Indoor Flowerbed Sustainability (Course Project, Transport Phenomena) — Fall 2020

- Designed a flowerbed to serve as a thermal mass and used evaporative cooling to **reduce energy** use.
- Performed a **cost-benefit analysis** based on thermodynamic/transport models

Simulated MIPS Processor (Course Project, Computer Architecture) — Fall 2020

- Designed full instruction set **MIPS processor** in **behavioral Verilog**.
- **Validated performance** with exhaustive tests for every instruction and assembly programs

Planet Simulator (Independent Personal Project) — Spring 2020 – Present

- **Created** a **space-themed planetary physics** game on the Roblox platform.

Inverted Pendulum Robot (Course Project, Engineering Systems Analysis) — Spring 2020

- Implemented and tuned a **PID controller** to balance an inherently **unstable** robot, allowing us to drive the robot along **complex paths in 2D space** without falling over.

Conventional AM Radio (Course Project, Analog and Digital Comm.) — Fall 2019

- Prototyped a **conventional AM** transmitter and receiver using just opamps and multipliers.
- Built a **voltage-controlled oscillator** out of multipliers to produce a carrier wave.

The Wanderer (Course Project, Principles of Engineering) — Fall 2019

- Built a friendly, **computer-vision** enabled robot that wanders and greets passers-by.
- Coordinated electronics and power supply with mechanical and software members.

Human Motion Project (Personal Research Project) — May 2016 – May 2018

- Designed and tested **wearable motion tracking system** for fitness and medical use. Replaces camera-based motion capture with independent motion sensor array as an **accessible alternative**.
- Acquired skills from **PCB design and assembly** to **firmware** writing in C and data analysis.

Skills

Electrical

Analog & digital circuit design, PCB assembly, circuit troubleshooting, microcontroller firmware, prototyping, SPICE, Verilog, PIC microcontrollers, Arduino

Programming

Python, Embedded C, Git, Lua, MATLAB, MySQL, HTML/CSS/JS

Hardware

CNC, drill press, miter saw, table saw, band saw, table router, hand router, random orbital sander, belt sander, planer, soldering iron, heat gun, heat plate, reflow oven, oscilloscope, multimeter

Software

Autodesk Eagle, Solidworks CAD/CAM, Inventor, Fusion 360, LabVIEW, Roblox Studio