Peter Murray

peter@petermurray.net
Worcester, MA
www.petermurray.net (check it out)

Hello! I'm Peter, and I'm looking for projects that spark joy, like my **robotic musical siren**, helping build an **electric racecar**, and building animations that explain fundamental **motion planning** topics.

EDUCATION

Worcester Polytechnic Institute   *Sep. 2019 – Dec. 2023*
M.S. Robotics Engineering (3.8/4.0), B.S. Mechanical Engineering (3.8/4.0)

Sturgis Charter Public School (3.7/4.0)   *Sep. 2016 – May 2019*

PROFESSIONAL EXPERIENCE

Worcester Polytechnic Institute   *Jan 2024 – Jun. 2024 (anticipated)*

Currently an assistant manager for WPI's undergraduate robotics labs. Supported our OpenMANIPULATOR-X robotic arm lab, turtlebot navigation lab, and helped faculty design and implement lab equipment.

Draper Laboratory   *May 2023 – Aug. 2023*

Supported hardware-in-the-loop simulation of tactical systems under systems engineering by validating network messages, troubleshooting decoding, and visualizing a timeline of network data and system flags.

Teledyne Marine   *May 2022 – Aug. 2022*

Supported mechanical design and development of unmanned underwater Slocum Gliders. Created a simple python tool to collect and synthesize tidal current information, expanding an ocean current model for glider navigation.

EdgeTech   *Jun. 2021 – Sep. 2021*

Designed and shipped custom, add-on parts for customer's underwater tow vehicles, 3D printing parts for prototyping and production. Created part and assembly design and documentation for new and existing products.

PROJECTS

Miren, a Musically Attentive Siren   *Sep. 2023 – Dec. 2023*
Miren is a wireless volume and pitch-controllable air raid siren that can listen to its environment, identify melodies, and generate a continuation of the melody using a 2nd order Markov chain. It is also extremely loud.

RRT Kinodynamic Planner for Planar Manipulators   *Sep. 2023 – Dec. 2023*
An exercise in motion planning, myself and two others built an actuated planar manipulator simulator to dynamically navigate a workspace using the RRT algorithm.

Programmatic Motion Planning Animations   *Sep. 2023 – Dec. 2023*
Created animations with *Manim* to visualize and explain compelling search algorithms and robotic configuration space topology, using my own implementations of RRT, RRT*, and a 2R manipulator simulation.

Formula Electric   *Sep. 2022 – May 2023*
Helped design, build, and manufacture the accumulator and power systems on WPI's electric racecar that competed in the "Formula Hybrid + Electric" 2023 competition. Placed 3rd overall!

High Power Rocketry Club   *Sep. 2021 – May 2023*
Helped design, build, and troubleshoot PCBs for 2022-23's rocket. Helped design, model, and prototype the UAV payload for HPRC's 2021-22 competition rocket.

SKILLS

Mechanical: Solidworks, Fusion 360. Experience with drawings, DG&T and machining basics.
Programming (in order of proficiency): Python, MATLAB, C, C++.
Other: Familiar with ROS, COMSOL, and Altium designer.