David Ologan

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Education:

Carnegie Mellon University (CMU) Pittsburgh, PA
Masters in Mechanical Engineering- Research, Concentration in Robotics and Control Systems Expected – 05/2024
Legged Controls Graduate Researcher at Robomechanics Lab

Massachusetts Institute of Technology (MIT) Cambridge, MA
Bachelors of Science, Mechanical Engineering, Electrical Engineering and Computer Science 05/2022

Work Experience:

NYU STEP Python Programming Instructor, New York, NY 06/2022 – 08/2022
Shark/Ninja: Robotics Development Intern, Needham MA 06/2021 – 08/2021

- Designed and manufactured unique brush-roll geometries and testing apparatus in Creo to optimize pet hair pickup on Shark Robotic Vacuum by 58%
- Drafted and fabricated Floor Powered Side Brushes to minimize costs and size without sacrificing edge cleaning performance

MIT ELO/Volunteers for Medical Engineering (VME)/ MIT Sandbox, Cambridge, MA 10/2020 – 03/2022

- Designed a portable sit-to-stand apparatus for an elderly woman with limited mobility in an attempt to assist her in daily life and with her needs in handicapped bathrooms
- Partnered with MIT Sandbox to bring the design to market

MIT 6.a01 Learning Assistant: Making with Technology and Fish-Bots, Cambridge, MA 09/2018 – 12/2021

- Instructed other undergraduate students on the construction of a computer controlled brushless motor using modern fabrication techniques and microcontrollers
- FISHBOTS: Constructed an underwater whale shaped remotely operated vehicle (ROV), utilizing waterproof servos to mimic the undulating motion commonly seen in whales to produce thrust

Columbia University: Lamont-Doherty Earth Observatory, Palisades, NY 03/2017– 06/2018

- Created a python-based Sequence Stratigraphy Algorithm to determine Seismic Risk in the Marmara Sea and utilized seismic data from the region to generate a model that analyzes prior and future earthquake activity

Academic/ Research Experience:

MIT UROP: Deng Energy and Nanotechnology Group, Cambridge, MA 05/2020 – 08/2020

- Implemented a Physics Informed Neural Network (PINN) using TensorFlow and DeepXDE libraries to effectively model the Inverse Reaction of the Lorenz System

MIT UROP: Beaver Cube, Cambridge, MA 12/2019 – 01/2020

- Assisted with the development of a 3-u CubeSat with Ocean Surveying Payload, f-prime based flight computer

MIT UROP: 3D Printed Homes, Cambridge, MA 12/2019 – 01/2020

- Evaluated the feasibility of affordable, low cost homes using large scale 3D Printing
- Worked with Professor Hardt to develop a comprehensive python-based model that determined the requirements of a factory network to satisfy intended global production needs

Momentum (Office of Minority Education/ General Motors), Cambridge, MA 12/2018 – 01/2019

- Partnered with GM to improve passenger entry and egress in autonomous ride sharing vehicles
- Recipient of Momentum Feasibility Award for RFID optimized system that tracked and logged passenger identities

MIT UROP: Rohsenow Kendall Heat Transfer Laboratory, Cambridge, MA 11/2018– 08/2019

- Fabricated a glass heat resistant enclosure for thermal energy storage experiments
  Developed and repaired lab specific equipment for HFI-5 Induction Heater, Cooling System
- Performed experiments on various materials (such as silicon) to determine latent heat properties for thermally storing electric energy through TES. Feasibility for energy storage was evaluated based on price and specific heat capacity

Related Coursework:

Graduate Courses: Modern Control Theory, Robot Dynamics and Analysis, Computer Vision for Engineers, Intro to Deep Learning, Optimal Control and Reinforcement Learning
Undergraduate Courses: Intro to Robotics, Design & Analysis of Algorithms, Power Electronics Lab, Dynamics & Controls II, Product Engineering Processes, Thermo-Fluids Engineering I, Microcomputer Project Lab, Nanoelectronics & Computing Systems
Extracurricular Activities: MITERS (MIT Electronics Research Society), MIT Maker-Works (2018-2021)

Skills:

Programming Languages/ Software: Python, C++, C, Assembly, MATLAB, SolidWorks, AutoCAD, Autodesk Fusion, Creo, Eagle
Machine Shop Experience: Mill, Lathe, 3D-Printer, Waterjet, CNC, Laser-Cutter, Circuit Construction and Design