

Madeleine Weaver

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EDUCATION

Carnegie Mellon University (CMU)

Master of Science Mechanical Engineering - Research; Concentration in Robotics; GPA:3.7

Pittsburgh, PA

May 2024

AiPEX Graduate Researcher, BRIDGE Scholar

Courses: Machine Learning and Artificial Intelligence for Engineers, Computer Vision, Biomechanics of Human Movement,

Bioinspired Robotics

Northeastern University (NEU)

Bachelor of Science Electrical and Computer Engineering; GPA: 3.5/4.0

Boston, MA

May 2022

Silicon Synapse Undergraduate Researcher, NASA Big Idea Challenge Electrical Team Lead, SPOWER Scholar

SKILLS

Programming: Python, HTML, C++

Fabrication Skills: MIG Welding, Micro-Soldering, 3D Printing, Laser Cutting, Casting and Molding, Electrical Systems Assembly, Manual Machining

Software: SolidWorks, MATLAB, LabView, Blender, Unity, Altium, Adobe Premiere, Adobe Photoshop

RESEARCH EXPERIENCE

AiPEX Lab (CMU)

Humanoid Robotics Applied AI Graduate Researcher

Pittsburgh, PA

July 2022 - Present

- Developed and performed classroom demos using virtual reality and motion capture to control humanoid robot digital twin for 24-675 Humanoid Robotics and Cognition; wrote python scripts to enable students to optimize performance in open-ended assignments
- Researched methods to implement machine learning control algorithms for humanoid robots to enable realistic and social context-informed facial expressions, speech and gestures; considered work from both artistic and scientific communities
- Investigated use of biomechanical models in improving fidelity of humanoid hardware

MxR Lab (USC)

REU Undergraduate Researcher

Los Angeles, CA

May 2018 - July 2018

- Worked on a team of three to create augmented reality environment to measure effect of immersion on decision making when confronted with ethical dilemma
- Modeled virtual objects in Blender including lever and built corresponding physical lever with integrated sensors for use in data collection
- Contributions to experimental environment made poster submission "Advancing Ethical Decision Making in Virtual Reality" possible, won Best Poster Honorable Mention at IEEE VR Osaka

PROFESSIONAL EXPERIENCE

Hasbro

Animatronics Engineer Co-Op

Pawtucket, RI

July 2020 - January 2021

- Designed and fabricated animatronic and electronic toy prototypes for concept review
- Employed conceptual knowledge of physics and electrical design to complete projects based on wireless power transfer and analog signal processing, employed practical knowledge of Arduino programming and servo model construction to create low-cost but memorable effects
- Presented roughly 10 product pitches individually and 2 in a group, including graphics and animations edited in Adobe Photoshop and Premiere
- Contributed to development of concept and prototype for competition-winning team product pitch, product was considered for development

ACADEMIC PROJECTS

Articulated Mouth Robot Capstone Project

Northeastern University, Carnegie Mellon University

Boston, MA - Pittsburgh PA

Spring 2021 - Present

- Created robotic mouth capable of mechanically actuating human-like speech sounds using a speech classifier and RL network ‘
- Based hardware design on design created by Professor Hideyuki Sawada from Kagawa University in Japan, integrated soft-robotic pneumatic actuators for improved articulation

Jellyfish-Inspired Robot

Carnegie Mellon University

Pittsburgh PA

Spring 2023

- Designed, fabricated and evaluated robot for observing sea life with jellyfish-inspired propulsion mechanism to reduce environmental disturbance ‘
- Won Best Overall Project at course expo