Brandon Woodward

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EDUCATION

Carnegie Mellon University   Pittsburgh, PA
Master's in Artificial Intelligence Engineering – Mechanical Engineering   May 2025
- Coursework: Intro to Robot Learning, Modern Control Theory, Gen AI and LLMs, Robot Dynamics and Analysis

Georgia Institute of Technology   Atlanta, GA
Bachelor's in Mechanical Engineering   December 2022
- Minor in Robotics with coursework in machine learning, robotics, and controls

INTERNSHIP EXPERIENCE

Neura   Metzingen, Germany
Humanoid Robot Artificial Intelligence Intern   June 1, 2024 – December 1, 2024
- In charge of developing and training a new multi-task AI controller using a transformer
- Assisting in expanding and improving stability of the existing controllers
- Creating IsaacSim simulations using multiple different robot models
- Running demonstrations both on and off site while fixing any physical/electrical problems encountered

IHMC Robotics   Pensacola, FL
Software Integration Intern   May 2021 - August 2021
- Helped develop controls infrastructure in Java for a load bearing exoskeleton, allowing for basic locomotion
- Generated biological knee and ankle joint torque trajectories via Java FX and lab recorded data
- Created 3D models of robots in RViz using ROS and urdf files, allowing for accurate simulations

SCHOOL PROJECTS

HUMANOID CONTROL USING TRANSFORMER   Pittsburgh, PA
Course project for Intro to Robot Learning   April 2024 - May 2024
- Implemented RL on the H1 unitree using TD-MPC2 on the Humanoidbench environment github repository
- Created a transformer to learn state, q-value, action, and reward using AWS decreasing train time by 60%

AI Poker Bot   Pittsburgh, PA
Hackathon hosted by the CMU Poker Club   March 2024
- Coded a poker AI on a custom variant of poker in 24 hours
- Trained the bot using Generalized Advantage Estimation (GAE) to beat a basic probability bot consistently

Tesla Model 3 Controllers   Pittsburgh, PA
Course project for Modern Control Theory   October 2023 - December 2023
- Implemented PID, Pole placement, and LQR with an Extended Kalman Filter controllers on a Webots simulation

RESEARCH EXPERIENCE

Georgia Tech EPIC Lab   Atlanta, GA
Undergraduate Researcher   August 2021 - May 2022
- Tuned LABView control algorithm for a lower back exoskeleton to be applied in live tests
- Designed and assembled exoskeleton hardware, reducing the mass by along with running testing procedures

Georgia Tech LIDAR Lab   Atlanta, GA
Undergraduate Researcher   August 2020 - May 2021
- Designed tarsal segments in SOLIDWorks to attach to a foot on Cassie, a bipedal robot, improving stability
- Redesigned and manufactured new prototypes based on test results over several iterations

LEADERSHIP

Master's Representative, MechE Graduate Student Organization - Pittsburgh, PA   August 2023 - Present
- Voicing concerns of master's students to the organization, ensuring equal representation to PhDs

Executive Officer, Yellow Jacket Archery Club - Atlanta, GA   January 2021 - December 2022
- President: Lead fellow officers to maintain stability and improve conditions   May 2022 - December 2022
- Previous positions: Equipment Manager and Historian   January 2021 - May 2022
- Coached as a level 2 instructor and level 1 judge under USA Archery

SKILLS

Python, C++, Java, AutoCAD, OnShape, soldering, metal/woodworking, tranformers, diffusion, controls, RL, and more..