BENJAMIN RUSS

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CAREER SUMMARY

Mechanical Engineer and Robotics Researcher passionate about building responsive, force-aware robotic platforms. From academic research on multi-robot emergent behavior to industrial systems engineering at Honeywell, I integrate mechanical design with low-level control systems to enable adaptive, real-world robot performance. My experience in hardware, embedded control, and simulation allows me to develop and validate robust robotic testbeds that shorten iteration cycles.

EDUCATION

B.S., Mechanical Engineering, ACCEND Student May 2022
M.S., Mechanical Engineering, SRIDE Graduate Research Fellow August 2023
University of Cincinnati: Cincinnati, OH

TECHNICAL SKILLS

Robotics and Programming: ROS, ROS2, Gazebo, Nvidia Isaac, Python, C, C++, MATLAB, LaTeX
Design and Modeling Tools: Solidworks, AutoCAD, Inventor, Siemens NX, Catia, Microsoft Office
Algorithms and Control Systems: Impedance Control, Dynamic Systems Analysis, SLAM, Sensor Fusion, Particle Swarm Optimization, Reinforcement Learning

PROFESSIONAL EXPERIENCE

Honeywell Intelligrated, Cincinanti, OH:
Mechanical Design Engineer Aug 2022-Present
Systems Engineer Co-op June 2020-Dec 2020, May 2021-Aug 2021

- Filed three patent applications relating to sensorized mechanical subsystems for automation
- Concepted, prototyped, and finalized embedded design of preventative maintenance devices establishing an estimated $100,000 annual revenue pipeline
- Identified key annual cost savings in material and process of $50,000
- Designed and executed customer specified testing contributing to a $125M initial contract and established future order pipeline

ACADEMIC EXPERIENCE

University of Cincinnati - Embodied and Interactive Systems Laboratory May 2018–Aug 2023
Graduate Research Assistant

- Created Gazebo simulation in ROS to model swarm behavior and impedance control strategies
- Designed and manufactured force sensing, omnidirectional robot platform for real-world validation
- Developed real-time data pipelines in ROS for multi-sensor input (Load Cell, IMU) and physical actuation
- Co-authored conference submission (IROS 2023) on impedance-controlled multi-robot interaction; revisions underway for resubmission
- Awarded Space Research Institute for Discovery and Exploration Fellowship for multi-robot research

PERSONAL PROJECTS

Custom Force-Feedback Motor Driver Spring 2024-Present

- Developing a custom testbed for evaluating real-time force interaction in mobile robotic platforms
- Built modular system for assessing dynamic response under controlled physical contact in sim-to-real control workflows
- Designed and integrated embedded force-sensitive resistors (FSRs) with custom circuitry and Python-based data streaming