Benjamin J. Russ

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Education

University of Cincinnati: Cincinnati, OH

- Bachelor of Science, Mechanical Engineering, ACCEND Student, GPA: 3.30 *Class of 2022*
- Master of Science, Mechanical Engineering, SRIDE Graduate Research Fellow, GPA: 3.88 *Class of 2023*

Experience

Honeywell Intelligrated *June 2020 – December 2020, May 2021 – August 2021, August 2022 – Present*

Mechanical Design Engineer 1, Systems Engineer Co-op

- Designed parts for NPI and revisions to existing product lines using Solidworks
- Collaborated across multiple departments and disciplines to develop upcoming products
- Simulated critical components and assemblies for NPI products for validation and cost reduction
- Revision of current product drawings to address manufacturing, assembly, or cost challenges

Embodied and Interactive Systems Laboratory *May 2018 – August 2023*

Graduate Research Assistant

- Designed multi-robot system for use in robotics swarming behavior and impedance control research
- Implemented adaptive multi-DOF dynamic trajectory planner and force controller to facilitate swarming behavior
- Researched and developed methods for organizational patterns of multi-robot systems through physical contact
- Designed and manufactured force sensing, omnidirectional robot platform to explore contact in mobile robots
- Optimized and tested sensor performance for multi-level microcontroller architecture
- Created Gazebo simulation in the ROS framework for proof-of-concept modeling of multi-robot system

Kinetic Vision *January 2019 – May 2019, August 2019 – December 2019*

Design Engineer, Co-op

- Managed the company FDM workflow, decreasing average lead time from 3 – 5 days to 1 – 2 days
- Manufactured and finished projects at high quality on short timelines including structural and aesthetic parts
- Programmed Catia CAD automation to simplify and streamline processes such as product - model generation
- Designed complex parts for clients with Solidworks and Catia through surface and parametric profiling

Hyperloop UC / Midwest Hyperloop *September 2017 – August 2019*

Structures Lead Engineer; Design, Simulations & Magnetics Engineer

- Lead sub-team of student engineers to design, simulate, and build the mechanical sub-systems of the vehicle
- Instructed young, incoming members on topics such as CAD, FEA, manufacturing, and competition procedures
- Coordinated communication of: designs, analysis, and manufacturing among the three universities of Midwest Hyperloop (University of Cincinnati, Purdue University, University of Illinois at Urbana Champaign)
- Designed structural systems for vehicle control, chassis, safety, and propulsion/transmission using Solidworks
- Performed FEA Crash, traction analysis, and other structural simulations for vehicle design analysis
- Manufactured parts for custom pod with 3-axis CNC mill, lathe, 2-axis mill, and other metalworking techniques
- Assisted in securing over $20,000 in sponsorship including FEA software, CAD software, and manufactured parts
- Lead the team to the top 21 from approximately 500 teams entered in the 2019 SpaceX Hyperloop competition

Skills & Software Expertise

- Solidworks
- ROS/ROS2
- Gazebo Simulator
- C++
- Python
- MATLAB
- Autodesk AutoCAD
- Autodesk Inventor
- Catia V6, EKL
- Siemens NX
- GD&T
- Metalworking & CNC
- Additive Manufacturing
- LaTeX
- Microsoft Suite