DAVIN LANDRY

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EDUCATION

NORTHWESTERN UNIVERSITY | Evanston, IL
Master of Science in Robotics

PURDUE UNIVERSITY | West Lafayette, IN
Bachelor of Science in Mechanical Engineering

PROFESSIONAL WORK EXPERIENCE

Northwestern University | Evanston, IL Feb 2023 - Present
Research Engineer: Center for Robotics and Biosystems (CRB)

- Led the design and enhancement of the Omnids as Lead Mechanical and Electrical Engineer, collaborative mobile robots, preparing for demonstration at the MARS 2024 Conference
- Lead Instructor of the Robotic Design Studio Engineering Capstone course, guiding students to develop high-fidelity robotic systems, including an anthropomorphic SEA robot arm and a finger/thumb gripper equipped with a haptic-enabled exoskeleton controller
- Manager of the CRB Makerspace, offering consultation to PhD and Master's students to bring their robotic research projects to life through comprehensive support in mechanical design, manufacturing, and beyond

The Institute For Human Machine Cognition (IHMC) | Pensacola, FL June 2022 - Sept 2022
Robotics Engineer: Lead of QUIX ExoHaptics Project

- Developed and implemented haptic feedback devices for the QUIX lower-body rehabilitative exoskeleton
- Coded communication system for the haptic device in C++ to relay walking gait states in real time to enable leg awareness for exosuit pilots
- Integrated and validated ExoHaptics with force plate testing equipment to interpret Center of Pressure feedback for balance perception and stability awareness for lower body exoskeletons

The Institute For Human Machine Cognition (IHMC) | Pensacola, FL Feb 2020 - Aug 2021
Robotics Engineer: NADIA Humanoid Robot Project

- Conducted literature review on humanoid robotic feet to design and prototype robotic feet, incorporating bio-inspired toes to better utilise “roll-over-shape” and add the 4th linkage of a bipedal system
- Defined requirements and tested 6-axis Force/Torque sensor for center of pressure sensing in the robot foot
- Designed collapsing mold for layering carbon fiber upon for consistent inner surface topography of structural robot thigh shell, making carbon fiber thigh shells easier and more reliable to manufacture

PROJECTS

Omnid MoCoBots: MARS 2024 Dec 2023 - Mar 2024

- Managed a team of 13 students, driving the project to success through technical and leadership skills
- Engineered and led the implementation of critical features, including battery monitoring, wireless emergency-stop systems, and advanced joint limiters to enhance safety and functionality
- Designed, prototyped, and deployed multiple printed circuit boards (PCBs) in KiCAD, including the main control board integrating emergency-stop logic, battery voltage monitoring, and inter-board communication

Ball Balancing Robot: “Balanciaga” Sept 2021 - Dec 2021

- Led a team of robotic engineers to develop a ROS package that controls a whiteboard attached to the end effector of a 7 DOF Franka-Emika Panda Arm to make a ball navigate mazes drawn on the whiteboard
- Implemented a computer vision pipeline in Python for real-time ball detection and maze detection using OpenCV for HSV color detection and contour tracking

EKF SLAM pipeline in C++ from scratch Jan 2024 - Mar 2024

- Programmed a complete ROS pipeline in C++ for SLAM on a Turtlebot, from scratch

SKILLS

Programming: Python, C++, C (Embedded), Linux, Bash, Docker, MATLAB
Software Development: ROS, Git, Gazebo, OpenCV, MoveIt, Unit Testing
Design Software: OnShape, KiCAD, SolidWorks, Unity, Creo, CATIA V5