

Ben Spin

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Education

Carnegie Mellon University Pittsburgh, PA
Mechanical Engineering, Robotics and Control Systems. 4.0/4.0 Graduation Date: December, 2024
Relevant Coursework: Advanced Control Systems Integration, SLAM, Optimal Control and Reinforcement Learning, Robot Dynamics and Analysis, Artificial Intelligence and Machine Learning

Cal Poly SLO San Luis Obispo, CA
Mechanical Engineering, Mechatronics 2017 – 2021
Relevant Coursework in: Mechatronics, Controls, MATLAB, SolidWorks, FEA, Fusion, and Dynamics

Experience

L3Harris San Diego, CA
Sr. Radiation/Reliability/Quality Engineer April 2022 – March 2024

- Led the development and integration of in-house radiation analysis capabilities using Novice software and Monte Carlo simulations, enhancing the company's analytical capacity.
- Conducted comprehensive training sessions for engineering staff on the use of a Derating tool, contributing to the optimization and development of an advanced tool for improved efficiency and reliability.
- Obtained certification from Hi-Rel Laboratories for Pre-Cap inspections, and actively conducted these inspections for high-priority space projects, ensuring component integrity and compliance with stringent requirements (MIL-STD-883) and (MIL-STD-810).
- Executed reliability engineering tasks for critical and classified projects, applying rigorous methodologies to ensure system durability and dependability under demanding conditions.

California Polytechnic State University San Luis Obispo, CA
Advanced Mechatronics Teaching Assistant August 2020 – December 2020

- Provided comprehensive support in debugging complex code and hardware issues, to enhance students' understanding and application of mechatronic principles.
- Offered advice on hardware selection, ensuring students chose the most appropriate and cost-effective components for their projects.
- Collaborated closely with the professor to develop quantitative metrics for evaluating project successes, leading to a more structured and objective assessment framework.
- Graded a wide range of assignments with a focus on coding proficiency and hardware integration skills.

Projects

- **Dual Drone Lift System:** Successfully developed, tested, and implemented a control system for a dual drone setup, achieving a 43% increase in lift capacity. This innovation opens new avenues in aerial delivery systems.
- **Balance Table:** Engineered and built an actuating table capable of balancing a rolling rubber ball. Utilized MicroPython with an emphasis on object-oriented programming, enhancing control speed and precision.
- **Battle Bot:** From concept to completion, designed and prototyped a combat robot, including parts sourcing, PCB design, and sensor integration, using C++. This project highlighted the complete design and realization of mechatronic systems.
- **Bio-Inspired Grasper (*In Progress*):** Currently prototyping a botanical-inspired robotic navigator that operates without visual sensory data, exploring new paradigms in robotic movement and interaction.
- **Optimal Sailboat Control (*In Progress*):** Engaged in the trajectory optimization and optimal control of a sailboat by incorporating real-time weather data for efficient path planning.
- **Semantic ORB-SLAM (*In Progress*):** Integrating semantic logic into ORB-SLAM with the IDDA dataset to render SLAM computations more intuitive and human-like, enhancing robotic perception and navigation.