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Darren Biskup

EDUCATION

University of Illinois, Urbana-Champaign GPA: 3.94/4.00

B.S. Mechanical Engineering, Computer Science Minor *May 2024*

- *James Scholar Honors Program, Dean's List, ASME*

RELEVANT COURSEWORK

- Engineering Materials, Heat Transfer, Signal Processing, Statics, Dynamics, Solid Mechanics, Fluid Dynamics, Dynamics of Mechanical Systems, Thermodynamics, Mechanical Design, Design for Manufacturability, Algorithms and Data Structures

SKILLS

Computer Aided Design: CATIA 3DEXPERIENCE, Autodesk Fusion360, SolidWorks
Computer Programming: C++, Python (OpenCV, scikit-image), and Java. HTML and CSS
Technical: Design for Injection Molding, Battery Pack Design, DFM, GD&T, Mechanical Design

EXPERIENCE

Mehta Research Group - Soft Robotic Actuators JAN 2023 - PRESENT

Undergraduate Research Assistant

- Proficiently utilized Python's OpenCV and scikit-image libraries to perform camera distortion calibration on action cameras, ensuring accurate and high-quality image processing for the robotic soft octopus arm project.
- Spearheaded the design and construction of a precise 3D grid calibration system using a laser-cut clear acrylic board with green paint, resulting in the accurate capture of pixel coordinates of green dots using blob detection.
- Demonstrated exceptional problem-solving skills during the DLT calibration process, ensuring seamless data acquisition for the research project, and enabling the team to capture and analyze precise 3D coordinates efficiently.
- Actively collaborated with interdisciplinary team members, effectively communicating technical concepts and results, and making significant contributions to the advancement of research on modeling the robotic soft octopus arm.

Skydio MAY 2022 - AUGUST 2022

Product Design Engineering Intern

- Design for Injection Molding: Utilized CATIA 3DEXPERIENCE to redesign the Navigation Camera mounting mechanism for the company's next generation performance quadcopter drone.
- Communicated with overseas vendors in China to implement design change, ensuring injection moldability and minimal lead time. Kicked off injection mold retooling for newly redesigned Navigation Cameras.
- Designed and prototyped the mobile tablet adapter for the next generation drone controller using FDM and SLS 3D-Printing. Received DFM feedback from injection molding vendor.
- Worked with Manufacturing Engineers to design wire routing layout for drone RF cables, board to board connections, 3-phase motor power cables, LED cables.
- Designed custom wire clips and wire guides for injection molding, prioritizing ease of assembly while also taking into consideration potential interference from RF-sensitive electronics.

Lucid Motors MAY 2021 - AUGUST 2021

Mechanical Engineering Intern, High Voltage

- Battery Pack Development: Improved design for the high voltage chain halving the number of bolts required to join busbars. Conducted thermal analysis on busbar joints with new design to evaluate the new design's effect on car's horsepower, range, efficiency, and thermal endurance.
- Devised a method of measuring resistance of busbar joints up to 50% more accurate than the HIOKI low ohmmeter.
- Collected and analyzed data on heat generation from bolted busbars joints, and used this data to calculate theoretical horsepower and efficiency loss of specific joints.

PROJECTS

Eco Illini Supermileage - Battery Pack Revamp

- Newly designed battery pack of prototype efficiency electric vehicle to compete in the upcoming Shell Eco-marathon.
- Conducted range, energy density, power output calculation to design a new cell configuration around the newly chosen battery cell. Decreases pack size by 50% while increasing volumetric energy density by 33% over previous generation pack