

COLIN DAVIS

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EDUCATION

Northeastern University, Boston, MA

Bachelor of Science/Master of Science in Mechanical Engineering, Concentration in Mechatronics

May 2018

GPA: 3.70

Honors: Top Honors Award Capstone Project, Academic Dean's Scholarship, Music Scholarship, Honors Program, Dean's List

Activities: Wind Ensemble, Fusion Ensemble, Jazz Ensemble

Master's Thesis: Design and Control of a Self-Folding Electrostatic Zipper Hinge

- Created prototypes for and demonstrated control of a reversible, high-speed, high-displacement, low power self-folding hinge for use in centimeter-scale soft robotic applications
- Electrostatic zipper actuating mechanism explored with analytical models, iterative prototypes, and quantitative testing
- In process of submitting a scientific paper to Smart Materials and Structures multidisciplinary journal

Capstone Project: Europa Lander Docking and Sample Transfer System

- Collaboration with NASA Jet Propulsion Laboratory to design and build a proof of concept prototype to demonstrate the feasibility of a subsystem for sample docking, transfer, and measurement on the proposed Europa Lander mission
- Created an integrated robotic system of custom passive mechanisms after defining key mission requirements
- Received Top Honors Award for mechanical engineering capstone project

ENGINEERING SKILLS

Software: SolidWorks (CSWA Certified), NX Unigraphics, MATLAB/Simulink, ANSYS, LabView, C++, Microsoft Office

Tools: Laser Cutter, 3D Printer, Soldering Iron, Milling Machine, Drill Press, Band Saw, Vertical Saw, Table Saw, Hand Tools, Oscilloscope, Power supplies and amplifiers, High-speed Camera, Electronics testing equipment

WORK EXPERIENCE

NASA Jet Propulsion Laboratory, Pasadena, CA

Mars 2020 Rover Motion Control System Integration and Test Engineering Co-Op

Jan 2017-Jun 2017

- Performed standardized characterization tests on mission representative DC brushless motors and actuators
- Designed new tools and supported additional testing to address special cases and specific concerns in new motor designs
- Characterized and validated the performance and viability of custom testing hardware
- Developed an automated MATLAB program for engineers to use to fetch, plot, analyze and compare test data
- Documented tests with formal and informal reports to share with superiors and peers

Robert Bosch LLC, Waltham, MA

Electric Vehicle Thermal System Engineering Co-Op

Jan 2016-Aug 2016

- Part of an international effort to understand future needs of thermal management system technology in electric vehicles
- Project management role in the design of an Electric Vehicle Thermal Management System Engineering Lab and Climate Chamber including vendor communication/organization, time management and design requirement engineering
- Designed and built custom test fixtures to create and connect thermal representations of EV subsystems by creating a working system of coolant loops, pumps, radiators, electric heaters and sensors
- Specified, compared and purchased necessary components and created detailed SolidWorks representations of systems
- Machined and assembled components and custom test fixtures necessary for lab including test carts, component mounts, hose routing and sensor fixtures

Textron Systems: Weapon & Sensor Systems, Wilmington, MA

Mechanical Design/Test Engineer Co-Op

Jan 2015-Jun 2015

- Designed, fabricated and tested a pneumatic test launcher to fire a projectile UAV BattleHawk™ at mission velocity
- Worked on a trade study to integrate multiple Textron's Fury™ missiles onto a standardized JAMS launcher system

Boating in Boston, Hopkinton, MA

Head Sailing Instructor/Counselor/Dock Staff

2011-2014

- Taught private and group sailing lessons to a variety of ages and abilities as Head Instructor and Counselor

BACKGROUND AND INTERESTS

- Strong interest in open-ended robotic and mechanical challenges that can further the advancement of humanity in fields including self-driving vehicles, clean renewable energy, space exploration, and soft robotics
- Avid pianist and percussionist; have played in, written/arranged for, and recorded many jazz, rock, and classical groups
- Other hobbies include biking, hiking, kayaking, sailing, scuba diving and traveling