KYLE HARLOW

ECES 116
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EDUCATION

University of Colorado Boulder *2013 - 2017*
B.S., Applied Math GPA: 3.82
Markov Processes, Fourier Series/B.V. Problems, Complex Var. and Applications
Magna Cum Laude **University of Colorado Boulder** *2013 - 2019*
B.S./M.S., Electrical Engineering GPA: 3.82/3.93
Control Systems Analysis, Advanced Robotics, Principles of Embedded Software,
Embedded Sensors and Actuators, Linear Control Systems,
Sampled Data and Digital Control Systems, Optimal Design,
Statistical Estimation of Dynamical Systems, Hybrid Dynamic Systems
Magna Cum Laude

RESEARCH EXPERIENCE

DARPA SubT Challenge, University of Colorado - Boulder *2019 - Present*
Acting perception engineer for the DARPA SubT Challenge where robots are tasked with navigating underground in various environments.

Masters Thesis, University of Colorado - Boulder *2018 - 2019*
Harlow, K.H. Algorithms and 3D Extension for Online Probabilistic Change Detection in Feature Based Maps. Defended successfully Summer 2019

ENGINEERING EXPERIENCE

RoboSub Electronics Captain and Co-Founder, University of Colorado Boulder *2014 - 2018*

Currently leading a redesign team to improve the working power platform by increasing reliability while adding embedded debugging capabilities
Led a senior projects team designing an integrated back-plane, power, and controls system
Programmed sampled data digital controls algorithms for vehicle stability and maneuverability in ROS
Designed layout and schematics of high power printed circuit boards (PCB's) in Altium Designer
Mentored new recruits in PCB and Circuit design as well as project management
Secured Engineering Excellence Fund grants in excess of $80,000 between 2015 and 2019
Managed sponsorship acquisition, securing donations and discounts of various critical sensors and software

Mechatronics Intern, SSL Robotics LLC. *Summers 2017 - 2018*

Designed blackout stage for Dragonfly Tipping Point Demonstration
Checked wiring diagrams for Dragonfly Tipping Point arm assembly
Programmed lighting array for Dragonfly Tipping Point End Effector
Designed an initial combination motor controller and IMU PCB for 1:5 Scale FriendArm
Designed and manufactured an IO breakout board for a National Instruments sbRio-9651
Programmed a LabView module that takes in SPI data from an IMU, and injects it onto an EtherCAT bus via a Copley ME3 Controller

Programmed an internal positioning system and inventory tracker integrating a Posyx positioning system, touch screen GUI, and bar-code scanner

TEACHING EXPERIENCE

ECEE 4610/4620, University of Colorado Boulder *2017 - 2019*

Helped student project teams navigate engineering design and testing processes
Taught students practical PCB design practices
Provided feedback and graded industry-standard review documentation
Helped students debug embedded sensor and actuator interfaces
Graded major engineering design presentations providing live feedback on student engineering plans
Taught and graded students on proper multistage testing practices

SKILLS

Programming Languages and Frameworks
ROS, PCL, Eigen, Compass, Cartographer

Languages
C, C++, Matlab, Python, ARM Assembly

Certifications
Radio Operators General License