Arielle M. Blum

Engineering Center, Room ECEE 1B55

425 UCB Boulder, CO 80309

Education

University of Colorado at Boulder **Fall 2012 – Spring 2015**

MS Electrical Engineering Electromagnetics/RF

University of Colorado at Boulder **Fall 2009 – Spring 2012**

BS Electrical Engineering with Biomedical Option

Work Experience

University of Colorado – Faculty Instructor, Electrical and Computer Engineering Department **Summer 2019 - Present**

Currently teach 3 undergraduate courses for the department: Freshman Projects, Introduction to Electronics and Circuit Analysis, and Application of Embedded Systems. Designed a new curriculum for an embedded systems course which focuses on both hardware and software using an ARM cortex based system to control a quadruped, students learn the basics of interrupt-based systems in C using a test-based approach, and introduced to the design, test, build, and iteration life-cycle of complex electro-mechanical systems.

University of Colorado – Faculty Instructor, College of Engineering & Applied Science **Summer 2014 - 2019**

Curriculum design, development, and iteration of an interdisciplinary, freshman engineering, group project course, COEN 1400. Introducing students to the engineering design process, technical documentation, formal design reviews, systems engineering, programming (Arduino, Raspberry Pi, etc.), PCB design, mechanical CAD, additive manufacturing, machining, laser cutting, and more. Teaching the course five times per academic year for the Pre Engineering program.

University of Colorado – Lecturer, Electrical, Computer, and Energy Engineering **Fall 2017 & Fall 2018**

Exploring ECE, ECEN 1100, a one credit hour course which exposes EE and ECE freshman students to the opportunities within academia and industry. Responsible for curriculum development, recruiting guests from the college, department, and industry, to provide students with first-hand real world perspective.

University of Colorado – Global Engineering Residential Academic Program Tutor **Fall 2016 - Spring 2017**

Provided drop-in, tutoring services for the RAP two nights per week, on a weekly basis, for the following courses: APPM 1350, APPM 2250, APPM 2350, APPM 2360, CSCI 1300, CSCI 2270, CSCI 2824, all ECEN courses, PHYS 1110, PHYS 1120, PHYS 2130, and more. Provided mentorship in all facets and promoted community.

Holzworth Instrumentation – RF Design Engineering Intern **Spring 2014**

Assisted in the development of a low phase noise, RF synthesizer, in a rapid development environment.

TriQuint Semiconductor via Volt Workforce Solutions – RF Design Engineering Intern **Summer 2013**

Developed a workbench in ADS for analyzing linearity of RF power amplifiers with LTE, W-CDMA, and TDMA input. Designed two-stage class A power amplifier using HBT process. Conducted analysis for feasibility of various matching circuits. Worked alongside Project Manager in order to develop and populate project definition specification document.

University of Colorado, Boulder – Lead TA and Learning Apprentice "Meaning of IT" **Fall 2012**

Worked for the Associate Dean of Education, College of Engineering, Professor Diane Sieber. Duties included assisting students, developing course material, giving an occasional lecture for 80 students, IT support, assisting in the development of quizzes and midterms.

University of Colorado, Boulder with Adjunct Professor Samuel Siewert – PCB Design **Summer 2012**

Design and layout of video encoder/decoder schematics using Altium 2009. The aim of the project is to provide an educationally minded interface for students to develop and expand their knowledge of digital media and real-time embedded systems. This interface provides hands-on access to both hardware and software aspects of this camera system which can be useful for observing the application of different resolutions, pixel encoding, and frame rate decimation.

Colorado Space Grant Consortium – Project Manager, Ground Station **Summer 2011**
Assisted with the manual construction of an S-Band ground station antenna for tracking amateur satellites. Worked on improving reliability of portable tracking stations for BalloonSat missions by evaluating power supplies and integrating new software. Analyzed characterization of VHF/UHF antenna system in order to purchase a proper circulator.

Service Experience

CU Quadcopter Club (CU Aerial Robotics Club) – Faculty Advisor and Founder **Spring 2015 - Present**
Created an interdisciplinary club and mini-quad curriculum to rapidly develop the base knowledge of new members through a series of technical workshops CAD, 3D printing, composites, programming, electronics, flight training using the RECUV flight space. The goal of the club is to prepare interdisciplinary, undergraduate and graduate CU students, ~25 members, for industry through the design of autonomous aerial swarm robotics. The club is working towards participating in the International Aerial Robotics Competition, IARC, using a custom swarm, featuring: Raspberry Pi 3 running ROS for Machine Learning, SLAM, PixHawk 2, custom mechanical frame using composite materials. Responsibilities include design, analysis, project management, formal design review, procurement, fund raising, teaching, outreach, recruitment, attending weekly meetings, etc.

CU Combat Bot Club – Faculty Advisor **Fall 2018 - Present**
Assisted ECE undergraduate student, David Kopala, with founding a competition battle robotics club. Recruiting interdisciplinary undergraduate students, developing the base knowledge of members, raising funds through grant writing, logistics, etc. The team plans on participating in beetle weight competitions and working to compete on the TV show: Battle Bots, upcoming season.

HackCU - Judge, Mentor, Volunteer **Spring 2015 - Present**
Technical assistance, troubleshooting, logistics, coordination for 24 hour Hackathon with ~100 attendees in the first year and this year more than 500 attendees from CU and other national Universities. Responsibilities are generally limited to the day before or day of the event. HackCU is associated with MLH and has many industry sponsors. https://hackcu.org/

CU Hyperloop – Faculty Advisor and Founder **Fall 2017 - 2019**
Assisted students with establishing a new CEAS club at CU to participate in the SpaceX Hyperloop competition. During the first year of participation within the international collegiate competition and with only approximately 5 interdisciplinary undergraduate students, the team advanced and was invited to observe the competition at SpaceX in LA. For the Spring 2019 competition cycle, CU Hyperloop established a 5 person, senior design Capstone team, ECEN 4610, to design and develop the electrical control and navigation systems. CU Hyperloop has more than 30 active interdisciplinary, undergraduate and graduate, CU student members, the team has generated a more than 100 page design document, not including the hundreds of pages of analysis, and simulation documentation. Responsibilities include design, analysis, project management, formal design review, procurement, fund raising, teaching, outreach, recruitment, attending weekly meetings, etc. http://cuhyperloop.com/

ACM Women in Computing, Student Chapter – Faculty Advisor **Fall 2017 - 2019**
Faculty advisor for professional society through the Association for Computing Machinery, Women in Computing, promotes diversity with academia and industry with a focus on Computer Science. Mentor advisory committee of undergraduate students, ~10 students, in CS related majors in the planning, logistics, execution of professional and technical development events for students at CU with industry sponsors: Google, Seagate, Lockheed Martin, Twitter, Zayo, Splunk, etc. Work in conjunction with the BOLD Center and CS department to promote community and inclusion. The student chapter has more than 50 members at CU. http://wic.cs.colorado.edu/

CU Racing Team – Faculty Advisor **Fall 2017 - 2019**
Interdisciplinary Formula SAE racing team and Endurance racing team, with more than 80 active undergraduate and graduate members, that design, manufacture, and race in the collegiate competition. Work with the student advisory committee to assist with fundraising, sponsors, logistics, etc. https://buffsracing.com/

Electrical Car Club – Faculty Advisor **Summer 2018 - 2019**
Founded by ECE and EE undergraduate students, this interdisciplinary team is focused on developing an electric vehicle by retrofitting a Go Cart with custom electronic control, electronics, and manufacturing. Mentorship concerning logistics, scheduling, operating within the University recruitment, project management, etc. https://cuelectriccar.com/