3220 Madison Ave Apt 4 Boulder, CO
805-405-5670
miranda.butler@colorado.edu

Miranda Butler

Objective

To contribute to the growth and understanding within the field of system controls and computer science using past experience and developed problem solving skills.

- Dedicated to working efficiently within teams to meet deadlines while placing safety and quality above all else.
- Consistently work to incorporate innovative ideas to produce more efficient and effective technology.
- Natural ability to effectively interact in a group setting, demonstrated ability to organize, engineer, and generate results.

Education

University of Colorado Boulder Boulder, CO
B.S. Mechanical Engineering, Computer Science Minor May 2016

GPA: 3.54 out of 4.0

Technical Skills

Python, C++, MATLAB, LabVIEW, SolidWorks, Autodesk Inventor, Java, Arduino, Mathematica, LaTeX, HTML , Laser Cutter, Lathe, Mill, Drill Press, MS Office

Coursework

System Dynamics, Computer Aided Design, Component Design, Microsystems Integration, Circuits for Mechanical, Computer Systems, Data Structures, Algorithms

Awards/Memberships

Dean's List (Fall 2011, Spring 2012, Spring 2013), Engineering GoldShirt Program, Engineering Honors Program

Engineering Experience

National Institute of Standards and Technology Boulder, CO
Guest Researcher in the Antenna Metrology Project, Spring 2012-Present
RF Technology Division

- Designed and assembled quasi-optical scanning system used to visualize mmWave scattering off of objects. Wrote LabVIEW code to drive a motor over a specified x-y grid and measure RF energy at each point on the grid. Analyzed the data acquired and refocused the image to improve the system.
- Constructed an automated system for power level reference.
- Developed an optical beam profiler system using a webcam and Gaussian fit model.
- Designed and manufactured custom parts using AutoCAD Inventor.
- Wrote MATLAB code for a graphical user interface.
- Awarded research fellowship via the Professional Research Experience Program.

AMTL: In Vivo Disturbance Simulator Boulder, CO
For Control of Lifesaving Mobile Capsule Surgical Robots Fall 2015-Present
Systems Engineer

- Designed and casted 2x and 1x scaled colon molds using 3D printing
- Prototyped, designed, manufactured and controlled disturbance table with 4 DOF to mimic patient breathing and shifting using stepper motors for linear actuation and MATLAB control

CU Bridges to Prosperity Samaca, Bolivia

Design Leader Summer 2015

- Used AutoCAD to designed a pedestrian footbridge in Bolivia
- Sourced materials and participated in construction of the bridge

Smart Alarm Clock University of Colorado Boulder

Student Spring 2015

- Design and assembly of a Smart Alarm Clock that was controlled by pressure sensors and an Arduino

Component Design University of Colorado Boulder

Manufacturing Engineer Fall 2014

- Used SolidWorks for design of a drill powered bike
- Personally manufactured custom parts

Kids Around the World Vicente Guerrero, Mexico

Volunteer January 2013

- Worked as a team to build three playgrounds in rural areas of Mexico and New Orleans
- Used tools to assemble parts, map out holes and analyze diagrams

YOU'RE@CU University of Colorado Boulder

Student Spring 2012

- Tested detention pond water for hydroxyl radical formation

Owen's Backpack University of Colorado Boulder

Student Fall 2011

- Constructed a backpack that holds an oxygen tank without it moving or causing stress on clients back

Publications

Researcher NIST

- Electromagnetically Induced Transparency with Rydberg Atoms in Strong Microwave Fields, October 2015
  (To be submitted October 2015 to Physical Review Applied)

Researcher NIST

- MM-Wave Near-Field Measurements Using Coordinated Robotics, June 2015
  (Submitted to IEEE Transactions on Antennas and Propagation)

Researcher NIST

- Automated Setup of a 90-140 GHz Power Reference, Fall 2014
  (PREP Poster Session)

Student University of Colorado Boulder

- Detention for hydroxyl radical formation, Spring 2012
  (YOU'RE@CU Poster Session)

Work Experience

Teaching Assistant for Computational Methods — University of Colorado Boulder
- Helped with assigned projects — Fall 2015

Butler's Pizza — Thousand Oaks, CA
- Website designer and social media coordinator — Present
- Cook and pizza deliverer

Flatirons Golf Course — Boulder, CO
- Manage and organize tee sheet, course ranger, cashier — Present

Andrews Hall Tutoring Coordinator and Tutor — University of Colorado Boulder
- Initiated and organized the tutoring program by recruiting, scheduling, tutoring, analyzing effectiveness and implementing improvements — August 2013-May 2014

Teaching Assistant for Pre-Calculus for Engineers — University of Colorado Boulder
- Helped with questions during recitation, held office hours, graded — Fall 2012

Lab Assistant in Environmental Engineering Lab — University of Colorado Boulder
- Prepared samples, ran samples through spectrophotometer and solar simulator — Fall 2012

Leadership and Volunteering

Engineering GoldShirt Program Scholar and Mentor — University of Colorado Boulder
- Leading study sessions, bonding events, mentoring individuals, and volunteering — August 2011-Present

Engineering Honors Program - Member — University of Colorado Boulder
- Participate in Honors program and classes — August 2012-Present

Tutor at Arapahoe High School — University of Colorado Boulder
- Tutored geometry and mentored students — Spring 2014

Technology and Engineering to Advance Math and Science — Longmont, CO
- Introduced engineering concepts to 5th graders and encouraged them to succeed — Spring 2013

Interests

Golfweek Amateur Tour Denver, CU Club Swim Team, Young Life College, Christian Crusaders Worship Band, The Annex, Boulder Indoor Soccer, CU Intramural Soccer and Tennis, skiing, guitar, yoga, Ableton, Arduino