Miranda Butler

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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

PennApps: Patches   University of Philadelphia

Hacker   January 2016

- Built a universal android app and website for animal shelters
  to list pet adoption info to help increase homeless pet adoptions
- Constructed and populated the database using MongoDB
- Contributed to website development written in html and PHP

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   October 2015
  Strong Microwave Fields,
  (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

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   August 2013-May 2014
  recruiting, scheduling, tutoring, analyzing effectiveness
  and implementing improvements

Teaching Assistant for Pre-Calculus for Engineers   University of Colorado Boulder

- Helped with questions during recitation, held   Fall 2012
  office hours, graded

Lab Assistant in Environmental Engineering Lab   University of Colorado Boulder

- Prepared samples, ran samples through   Fall 2012
  spectrophotometer and solar simulator

Leadership and Volunteering

Engineering GoldShirt Program Scholar and Mentor   University of Colorado Boulder

- Leading study sessions, bonding events, mentoring   August 2011-Present
  individuals, and volunteering

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   Spring 2013
  encouraged them to succeed

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