TANNER C. BOBAK

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"Somewhere, something incredible is waiting to be known." ~ Carl Sagan

OBJECTIVE: Through careful research I wish to help unravel the mysteries of nature and discover something for the benefit of all mankind.

EDUCATION

University of Colorado Boulder, Boulder, CO **2016-Present**

- **Expected Graduation:** May 2020
- **GPA:** 3.971/4.0, **Major GPA:** 4.0/4.0
- **Major:** Chemical and Biological Engineering
- **Minors:** Computer Science, Biomedical Engineering, and Applied Mathematics
- **Engineering Honors Program Member:** Specialized programming for high achieving students in the College of Engineering and Applied Science.

TECHNICAL EXPERIENCE

Research Assistant, Dr. Loren Hough Lab, University of Colorado Boulder **2017-Present**

- Studied effects of binding partners including Taxol and microtubule associated proteins on the biophysical properties of microtubules such as persistence length.
- Ran custom-programmed MATLAB applications via Bash scripts taking up to a day to run on CU's supercomputing resources to process microscopy data containing hundreds of images.

Research Assistant, Dr. Michael Shirts Group, University of Colorado Boulder **2017-Present**

- Studied peptide binding to SH2 domain intracellular signaling proteins using expanded ensemble molecular dynamics simulations.
- Created Bash, Python, and MATLAB scripts that take up to a week to run to simulate atomistic protein motion at the nanosecond time scale on CU's supercomputing resources and on resources at the Ohio Supercomputing Center via XSEDE.
- Awarded a $2,000 Undergraduate Research Opportunity Program grant for this project.

Independent Java Developer **2013**

- Developed custom modifications written in Java for the AEMCraft Minecraft sever and as a self-employed developer. Used software like Git, SVN, and Maven to create a high-quality product.
- Wrote 18,000 of lines of working Java code for a large project, while being self-taught.

LEADERSHIP/EXTRACURRICULAR ACCOMPLISHMENTS

AIChE Chemical Engineering Car **2016-Present**

- Competition to construct a shoe box sized autonomous vehicle powered and regulated by chemical reactions to carry a load a specified distance as accurately as possible.
- Member of the 12-person team and lead Arduino programmer at our weekly meetings. Arduino code controlled power delivery from hydrogen fuel cell to motors and sensed completion of iodine clock reaction that signaled car to stop at the correct distance.
- Placed first in Rocky Mountain Regional Competition and competitor at the 2017 International Chem-E Car Competition in Minneapolis, placing in the top half of teams.

AWARDS AND RECOGNITION

Boettcher Scholar **2016-2020**

- Awarded the Boettcher Scholarship, a prestigious four-year full merit scholarship in Colorado for my outstanding achievement, service, and leadership in high school. First recipient from my high school.

Mathematical Contest in Modeling – Meritorious Award **2017**

- Awarded the "Meritorious" distinction at the 2017 International Mathematical Contest in Modeling for my three-person team's paper on hydroelectric power solutions for the Zambezi River Basin.
- Created MATLAB code to test a model for effective use of water resources for power production in the area, tying in large topographical and GPS datasets from NASA and ArcGIS.

AP Scholar with Honor, AP Scholar with Distinction, National AP Scholar **2015-2016**

- Awarded for receiving high scores on multiple tests. National AP Scholar awarded for a score of 4 or higher (of 5) on at least eight exams and an average score of at least 4.

Popular Science Magazine/Innocentive Lesson Plan Design **2012**

- Won 2nd place in international competition to design a lesson plan on electrochemical cells for middle school students. Published in September 2012 Popular Science issue, pg.56.