

# Ed van Bruggen

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📄 edryd.org

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## Education

- 2017–Present **University of Washington**, *Cumulative GPA: 3.76*, Physics Major, Expected Graduation 2021.
- Current Condensed Matter Lecture, Linear Optimization, Physics Honors Program
- PHYS Thermal Physics, Electromagnetism I, II, III, Quantum Mechanics I, II, III, Particles and Symmetries  
AC Circuits, Advanced Digital Circuits, Nuclear and Particle Lecture and Lab, Mathematical Physics I, II
- MATH Differential Equations, Linear Algebra, Advanced Linear Algebra, Continuous Modeling
- CS Accelerated Intro to CS, Intro to MATLAB, Scientific Computing, Science of Photography

## Research

- 2020–Present **Undergraduate Researcher in Elementary Particle Experiment Group**, *UW Physics*.  
Performed truth level reinterpretation of analyses on ATLAS experiments at the LHC under supervision of Professor Shih-Chieh Hsu. Explored dark Higgs model which uses a new mediator and dark Higgs to allow for dark matter interactions in the accelerator. Awarded Institute for Research and Innovation in Software for High Energy Physics (IRIS-HEP) Fellowship in applying this research for the RECAST programming project.
- Wi 2020 **Participant in Physics Directed Reading**, *UW Physics*.  
Worked alongside graduate student to learn Lattice Quantum ChromoDynamics and how to critically engage with advanced academic literature
- 2019 **Intern at The UC Davis Explorer**, *UC Davis Biomedical Engineering*.  
Performed data analysis and image processing on experiments from the world's first total body positron emission tomography (PET) scanner, testings its limits and automating procedures for future experiments.
- 2018–2019 **Leader of UW's iGEM Mathematical Modeling Team**, *UW Bioengineering*.  
Synthetic biology research club, developed a methodology to optimize CID biosensors for small molecule detection. Leader of subteam which used mathematical modeling to better understand and assist our wetlab's work.

## Technical Experience

### Extremely Proficient With

- Languages C, Bash, C++, Matlab, Lua, Arduino, Java, Markdown
- Technologies Word, Excel, PowerPoint, Git, Vim, Bootstrap Web Development,  $\LaTeX$ , Linux
- Skills Soldering, Circuit Design, Custom PCB Etching, Oscilloscope Usage

### Have Experience With

- Languages Python, Lisp, JavaScript, HTML, CSS
- Technologies Mathematica, MadGraph, RECAST, ImageJ, Rosetta, Tellurium, Chimera, PyMOL
- Skills System Interpreter Design, Monte Carlo Simulations, Protein Folding Simulations, Kinetics Modeling

## Community Engagement

- 2019–Present **Member of United Students Against Sweatshops**, *UW*.  
Student campaign to pressure the university to disinvest from prison labor and demand better working conditions.
- 2018–Present **Lead Web Developer of Mental Health for Every Adolescent Organization**, *UW*.  
Student led club that promotes awareness of mental health issues among students throughout the world.
- 2018–2019 **Member of HuskyADAPT**, *UW*.  
Design and construct open source solutions to problems faced by children with disabilities in the community. We constructed a universal and inexpensive system to allow children who lack strong motor skills to interact with toys, an essential part of early learning.

## Interests

Photography, Backpacking, Trombone