

# Elliott Capek

## WORK EXPERIENCE

2013 - PRESENT, 4H/WEEK

### Computational Physics Thesis

Roundy Computational Physics Group

I am working on a numerical simulation of a motor protein using Brownian dynamics and a state-transition model to predict Dynein motor protein movement behavior. Skills gained:

- Applying Lagrangian/Brownian dynamics equations to simulate microscopic structure behavior
- Simulating systems using finite difference method
- Programming experience in C/++, Python, Mathematica, LaTeX

2016-PRESENT, 5H/WEEK

### Physics Lab TA

OSU Physics Department

I work for the OSU Physics Department as a TA where I teach an introductory kinematics lab. I use interactive methods to engage students and act as an intermediary between them and the professor.

2011 - PRESENT, 3H/MONTH

### NPO Web Development

I design and maintain websites for a group of related nonprofit organizations, most notably Sisters of the Community. Skills learned on-job:

- Deploying custom sites using the WordPress CMS
- Customizing WordPress themes in PHP
- Managing hosting and domain name services for sites
- Working with my employer to create stylistic and usable site designs

2013 - 2014, 40H/WEEK

### Biophysics Lab Assistantship

Qiu Biophysics Group

I worked in a biochemistry lab purifying proteins and preparing them for microscopy experiments, among other tasks. Skills gained:

- Writing line-finding code in Matlab to aid in data analysis
- Growing proteins in an *E. coli* medium
- Performing biochemistry lab procedures: protein purification, gel electrophoresis, buffer preparation, etc.
- Conducting microscopy experiments using a Total Internal Reflection microscope

2012 - 2013, 5H/WEEK

### MATE Robotics Competition, Technical Lead

Willamette University

I was the technical lead for a college robotics team. Tasks I accomplished on the team:

- Designed mechanical and electrical systems for an underwater ROV
- Programmed rudimentary communication between different ROV systems
- Organized a 1400\$ team budget

703 NW 4th Street, Corvallis, OR 97330

+1 971 207 8193



elliottc12@gmail.com

## EDUCATION

2013 - PRESENT  
(Expected 2018)

### Bachelor's Degree (transfer)

*Oregon State University*

PHYSICS

BIOCHEMISTRY

COMPUTER SCIENCE (MINOR)

MATH (MINOR)

GPA: 3.75

2012 - 2013

### Bachelor's Degree (began)

*Willamette University*

## TECHNICAL SKILLS

Programming

C/++, Python, **L<sup>A</sup>T<sub>E</sub>X**,  
Rust, PHP, MATLAB, Javascript

Tools

**Linux, git, matplotlib, WordPress,**  
**HTML/CSS**, Drupal, Mathematica,  
MySQL, **GIMP**, ImageJ, CUDA

Skills

Numerical simulation  
Systems programming  
Line-finding algorithms

## COMMUNICATION EXPERIENCE

2014 2014 Northwest Section APS Meeting  
Poster Session presentation

2014 OSU Undergraduate Research  
Symposium 10-minute talk

## RELEVANT COURSEWORK

|                        |                        |
|------------------------|------------------------|
| Numerical Simulation   | Applied Bioinformatics |
| Computational Physics  | Operating Systems I    |
| Analysis of Algorithms | Cryptography           |
| Data Structures        |                        |

## OTHER EXPERIENCE

|             |   |
|-------------|---|
| 2016        | OSU Astronomy Club Volunteer                      |
| 2015        | Intro Physics Lab TA                              |
| 2014        | ICFP Programming Contest - 52 <sup>nd</sup> place |
| 2012 - 2013 | Willamette University physics lab assistant       |
| 2008 - 2012 | FIRST Robotics Competition                        |

## GITHUB

[github.com/elliottc12](https://github.com/elliottc12)