

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

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EDUCATION

2013 - PRESENT (Expected 2018) **Bachelor's Degree (transfer)**
Oregon State University
PHYSICS
BIOCHEMISTRY
COMPUTER SCIENCE (MINOR)
GPA: 3.73

2012 - 2013 **Bachelor's Degree (began)**
Willamette University

TECHNICAL SKILLS

Programming **C/++, PYTHON, L^AT_EX**,
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

2015 Intro Physics Lab TA
2014 ICFP Programming Contest - 52nd place
2012 - 2013 Willamette University physics lab assistant
2008 - 2012 FIRST Robotics Competition

GITHUB

github.com/elliotc12