

# Benjamin A. Montgomery

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## Education

### University of Southern Maine

Portland, Maine

B.S. IN COMPUTER SCIENCE, MINOR IN PHYSICS: 3.9 GPA

Fall 2014 - Fall 2018

- COS 485: Design and Analysis of Algorithms
- COS 475: Machine Learning
- COS 460: Computer Networks
- COS 457: Database Systems
- COS 450: Operating Systems
- COS 420: Object-Oriented Design
- MAT 492: Graph Theory and Combinatorics

## Skills

**Languages** Three years experience with **Java** and **Python**, two years with **C** and **LaTeX**, and one year with **bash**. I've used **C#**, **C++**, and **PostgreSQL** for about six months each.

**Tools** Eclipse, MonoDevelop, Atom, VS Code, Jupyter Lab/Notebook, Git, Github, Bitbucket, Travis-CI

## Experience

### University of Southern Maine

Portland, Maine

SOFTWARE DEVELOPER

Summer 2016 – Spring 2019

- Developed a Python-based machine vision project pipeline designed to dynamically analyze Brownian motion in order to find Boltzmann's constant with high precision.
- Developer in a project to analyze and control an electromagnetically dampened torsion pendulum using real-time data analysis.

### University of Southern Maine

Portland, Maine

TUTOR

Fall 2018

- Was a regularly scheduled tutor for computer science courses through Data Structures.

### University of Southern Maine

Portland, Maine

RESEARCH ASSISTANT

Spring 2016 – Summer 2017

- Developer in NASA-sponsored project devoted to simulating light waves reflected by rotating objects in space, using C# and C++.
- Developed a Python package to calculate phase corrections for asteroids found in the Sloan Digital Sky Survey database.

### University of Southern Maine

Portland, Maine

TEACHING ASSISTANT

Spring 2017

- Wrote and graded quizzes, tests, and class exercises for second-year introductory physics class under Dr. Julie Ziffer

## Recent Public Presentations

- |           |   |                           |
|-----------|---|---------------------------|
| Mar. 2019 | <b>Subtleties in the use of a quadrant cell photodiode in an optical lever</b>                                | American Physical Society |
| Mar. 2019 | <b>Effective Realtime Data Processing using LabJack T-Series DAQs</b>   | American Physical Society |
| Apr. 2018 | <b>Improving Utility of the Sloan Digital Sky Survey Asteroid Database by Analyzing Reliability and Error</b> | Thinking Matters          |

## Recent Projects

### labjack-controller

University of Southern Maine

LEAD DEVELOPER

2018-2019

Open-source Python API for controlling Labjack T4 and T7 data acquisition devices in a parallel, thread-safe manner, found here.

### dharmia

University of Southern Maine

DEVELOPER

2017-2018

NASA-sponsored Python package designed to simplify or abstract complex processing procedures in order to apply recent phase correction methods to data found in the Sloan Digital Sky Survey MOC4. See more here.