

# Adam Harvey

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## EDUCATION

### University of Maryland, Baltimore County (UMBC)

PhD in Applied Physics

*Expected:* May 2020

MS in Applied Physics

*Conferred:* May 2017

### Lewis & Clark College (LC)

BA in Physics

*Conferred:* May 2013

BA in Mathematics

*Conferred:* May 2013

## PROFESSIONAL AFFILIATIONS:

- American Physical Society (sub-affiliations: Division of Astrophysics, Forum on Education, Forum on Graduate Student Affairs, Topical Group in Plasma Astrophysics, Mid-Atlantic Section)

**SKILLS:** C/C++, R, Fortran, Python, Visual Basic Script, Visual Basic .NET, Mathematica, SQL, Bash, CMD, Power Shell, Android Studio and SDK, Windows Management Instrumentation, Dexter

**OS:** Windows, Mac OS, Linux, Android, iOS

**Publishing and Design:** LaTeX, Microsoft Office (Word, Excel, PowerPoint), Adobe Creative Cloud (Photoshop, Illustrator, InDesign)

**Languages:** Japanese

## RESEARCH EXPERIENCE:

**Blazar Study** Researcher under PhD Advisor (February 2016-Present)      **UMBC Physics Dept**

- Worked on fitting of blazar spectral energy distributions using various methods, currently using a simulated annealing code in Fortran
- Wrote multiple programs (using both Fortran and R) to enable good visualization of likelihood function to assist in fitting
- Edited previously written statistical error analysis code to account for multiple common outlying cases
- Read and discussed with my advisor multiple literature reviews
- Independently read dozens of published papers in detail to better understand current ideas and models

**Curved Motion Model** Sole Researcher (August 2011-December 2011)      **LC Physics Dept**

- Wrote a one-page proposal of the project for consideration by a physics faculty member
- Modeled a body moving around a curve as a function of curvature, implementing fluid dynamics and friction
- Analyzed results using Wolfram Mathematica to understand dependence of time-efficiency on radius of curvature, assuming no slipping of the body
- Reported methods and findings in a six-page paper and presented findings to Lewis & Clark College Physics Department in a half-hour long presentation

#### **Spectrometer Independent Project (April 2011)**

**LC Physics Dept**

- Built a basic spectrometer on an optics table using a series of lenses and diffraction gratings feeding into a CCD
- Use spectrometer to create an image of the spectrum of unionized hydrogen
- Presented completed project using PowerPoint to a class of about twelve students and a professor and showed them the spectrometer and demonstrated its use
- Wrote a one-page paper describing my methods and results

#### **Error in Taylor Series Researcher Under Professor (November 2010-December 2010)**

**LC Math Dept**

- Using Wolfram Mathematica, approximated the evolution of the error of a Taylor series as it changes with increasing order at which the series is truncated
- Implemented graphs of error as a function of order of truncation to aid in visualization of error evolution
- Reported methods and findings in a three-page paper

#### **INDUSTRY PROJECTS:**

##### **Inventory Management System Co-Developer (August 2014-January 2015)**

**Vancouver Bolt & Supply**

- Developed a script written in VBScript meant to run on a dedicated machine to track inventory vended to customers by Vancouver Bolt & Supply, Inc.
- Worked with potential users of system to tailor development to their needs
- Integrated script to work with proprietary software used on an Android based tablet
- Developed a method to populate a database with information from the proprietary software
- Developed a method of security in use of software to ensure proper use of software and to reliably identify users

## **TEACHING EXPERIENCE:**

### **Teaching Assistant (August 2015-Present)**

**UMBC Physics Dept**

- Designed lab curriculum and policies for 1 introductory algebra-based physics lab
- Taught 2 introductory calculus-based physics discussion sections of 30 students each for 1 semester
- Taught 3 introductory algebra-based physics lab sections of 20 students each for 3 semesters and two summer section of 15 students
- Proctored and graded exams approximately monthly
- Ensured students followed principles of academic integrity
- Held office hours weekly, answering questions pertaining to my sections work and students work on Mastering Physics
- Graded homework weekly and maintained grades on Black Board

### **Physics Tutor (September 2011-May 2012)**

**LC Student Support Services**

- Tutored a physics student with a learning disability on an as requested basis
- Provided guidance to the student in academic matters as a peer mentor as asked of me by the student
- Flexibly scheduled tutoring sessions around the students athletics and academic schedule

### **Physics Help Desk Tutor (August 2010-December 2010)**

**LC Physics Dept**

- Assisted physics students with their homework and general physics questions on a weekly basis
- Led informal exam study sessions for introductory level students
- Conferred with faculty to determine how to best assist students in their learning

## **INDUSTRY EXPERIENCE:**

### **Information Technology Help Desk Technician (May 2015-July 2015)**

**Pavelcomm**

- Diagnosed and corrected technical issues for client organizations
- Processed repairs of client machines

- Supervised proper backup of client resources
- Worked with team members to diagnose and correct network issues

**Information Technology Assistant (July 2014-January 2015)**

**Vancouver Bolt & Supply**

- Planned and wrote multiple programs
- Searched for and identified flaws in network security
- Recovered data from failed storage
- Planned and implemented a new outside sales system (see industry projects)
- Worked with multiple databases
- Expanded physical network

**Claims Analyst (June 2013-August 2013)**

**Epiq Systems**

- Proficiently analyzed claims for class action lawsuits
- Verified validity of data provided
- Rectified errors in data
- Determined claimants' eligibility as class members
- Conducted research for large-scale projects

**VOLUNTEER EXPERIENCE:**

**UMBC Graduate Student Association (GSA), Treasury Committee Chair)**

- Formed and chaired committee working on GSA budgetary and financial concerns
- Co-wrote new governing documents (constitution, bylaws, policies) for the GSA which were adopted by the GSA Senate
- Documented the goals and responsibilities of the Treasury Committee
- Proposed, collaboratively wrote, and presented various resolutions to the GSA Senate

**UMBC Graduate Student Association (GSA), Treasury Committee Chair)**

- Chaired committee advising the GSA Senate and GSA Executive Board on GSA research and travel grants
- Analyzed historical data on grants using R to gather to inform decisions

- Created visualizations of data on grants using R to communicate via a report written in LaTeX to the Senate and Executive Board positions held by the Grants Committee

**UMBC Graduate Student Association (GSA), Physics Department Senator (September 2016-Present)**

- Represented the physics department and its interests in the GSA
- Attended GSA senate meetings on a monthly basis
- Served on the Grants Committee working on projects such as investigating the possibility of an emergency loan fund for international students whose stipend cannot be immediately disbursed due to visa processing

**UMBC Relationship Violence Prevention Advocates, Advocate (August 2016-Present)**

- Participated in training on outreach and advocacy on the subject of relationship violence prevention
- Assisted in the organization of an outreach event on campus
- Discussed issues related to power based relationships with other advocates

**Lewis & Clark College New Student Orientation, Management Team Leader (August 2010, August 2011)**

- Organized events for new college students to help facilitate transition to college life
- Oversaw delivery of new students possessions to their dorm rooms
- Cooperated with staff and other volunteers to run events

**Oregon Health and Science University Science Ambassadors, Student Director (July 2007-May 2009)**

- Created curricula and lesson plans for educating elementary school students
- Organized high school volunteers in mentoring and teaching elementary school students
- Organized presentations from university scientists to for both volunteers and students

**Oregon Health and Science University Science Ambassadors, Ambassador (October 2006-May 2007)**

- Mentored a fifth-grade student to communicate concepts in science and to enable them to learn about careers in science
- Participated in preparation for educational activities for elementary school students
- Helped with students absorption of information from various scientific presentations

**Oregon Museum of Science and Industry, Physics Lab Volunteer (September 2005-June 2007)**

- Demonstrated various physics experiments to patrons of the museum of all ages
- Supervised various independent hands-on activities available for all patrons
- Educated patrons on physical principles responsible for effects displayed in demonstration