

# RYAN DOUGHERTY

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## EDUCATION

**Arizona State University, Barrett Honors College**

*Pursuing Bachelor of Science in Computer Science (Math Minor), M.S. in Computer Science*

**Tempe, AZ  
2011-2015 (-2016)**

- Dean's List: Fall 2011, Spring 2012, Fall 2012, Spring 2013
- Major GPA: 4.27 (Overall GPA: 4.09)
- Undergraduate Coursework: Algorithms, Object-Oriented Programming, Assembly Programming, Calculus III, Applied and Advanced Linear Algebra, Statistics for Engineers

## PROJECTS

- CSE310 Honors Project: Templated C++ implementation of Red-Black Tree
- CSE110 Summer 2013 Automatic Grading program (Java)
- CSE240: Book Catalog service using C++ linked lists

## EXPERIENCE

**Arizona State University, Computational Optics Group**

**Student Programmer**

**Tempe, AZ  
6/2013-8/2013**

- Modified existing FORTRAN code to study optical response of silver nanoparticles of various geometries grown on silicon surfaces (wafers), measure reflected/transmitted/absorbed light as a function of incident wavelength
- Optical responses rely on Maxwell's Electricity & Magnetism equations' being propagated in time up to 400 femtoseconds ( $4 \times 10^{-13}$  seconds)
- Worked with existing implementations of the Finite-Domain Time-Difference (FDTD) method in C and FORTRAN90
- Understood how reflectance of light depends on shape and size of nanoparticle(s)

**Arizona State University, University Technology Office**

**Student Web Developer/Web Applications**

**Tempe, AZ  
5/2012-Present**

- Successfully improved repeated class search loading times by ~95% through implicit/explicit caching and pooled connections for a Oracle JDBC
- Fixed and added new features to some Arizona State University web applications, including back-end functionality (in Java) and front-end UI (in Tapestry)
- Improved performance and speed of various applications: losslessly compressed images by 19%, minified files by 40%
- Ran tests for the Undergraduate Admission app regarding residency/non-residency status (in Java)
- Upgraded various roadmaps of degrees

**Arizona State University**

**Grader**

**Tempe, AZ  
7/2013-12/2013**

- CSE110 (Principles of Programming with Java): Summer 2013, Fall 2013
- Led the labs portion of the course, graded assignments and labs
- Fall 2013 (Online): Used Adobe Connect to lead 1 hour video conference sessions with class

**Arizona State University**

**Undergraduate Teaching Assistant**

**Tempe, AZ  
1/2013 - 5/2013**

- CSE205 (Object-Oriented Programming & Data Structures): Spring 2013
- Distributed papers in class, answered questions, assisted students with assignments, held review sessions

**National Music Festival**

**Apprentice (Violin)**

**Chestertown, MD  
6/2012-Present**

- Performed with many other apprentices from all over the world and the U.S.

## SKILLS

- Languages: Java, C, C++, Objective-C (iOS), Python, Assembly (MIPS), Scheme, Prolog, FORTRAN90
- Development Applications: Xcode, Eclipse, Sublime Text, Terminal
- Web Development: HTML, CSS, JavaScript, jQuery
- Web Frameworks: Tapestry