Talents	**The ability to...**

- quickly learn programming languages, APIs, frameworks, & tools.
- work independently without supervision or external motivators.
- quickly understand complex systems and abstract concepts.
- clearly communicate abstract concepts and nuanced technical material.
- construct mathematical models and other logical abstractions.
- quickly identify the root causes of technical problems.

Technical Skills

Fundamentals	OOP	Research	3D Mathematics
	Algorithm Design	Numerical Analysis	Physics
	Numerical Simulation	Data Analysis	Astronomy
	Multithreading	Data Visualization	Statistics
	Optimization	Image Processing	Teaching
Languages	C++11	Bash / Shell	MATLAB / Octave
	Python	JavaScript	Scheme (Guile)
Frameworks & Libraries	Apache Mesos	UnitTest++	Matplotlib
	Apache Spark	Qt Framework	Boost
	libHDFS	NumPy	OpenMP
Applications & Utilities	GNU Binutils	Git	Qt Creator
	GCC	LLVM/Clang	Doxygen
	GNU Debugger (GBD)	Valgrind Suite	Docker

Operating Systems

GNU/Linux System Administration

Familiarity with Linux system calls / system programming

Apache Mesos (distributed system kernel)

Education

Doctor of Philosophy in Physics	Dec 2013
University of California, Riverside	

Master of Science in Applied & Engineering Physics	May 2008
George Mason University	

Bachelor of Science in Physics	May 2003
James Madison University	

Experience

Department of Physics & Astronomy, UC Riverside
Assistant Project Scientist — Jun 2014 – present

- Created StratOS, a Big Data platform that allows scientists to easily perform large-scale data analysis using pre-existing analysis software.
- Built a computing cluster for testing StratOS and other Big Data tools.
- Created an Amazon Machine Image (AMI) and scripts for deploying StratOS in Amazon's Elastic Compute Cloud (EC2).
- Greatly improved the performance, scalability, robustness, and fidelity of the photometric redshift estimation pipeline for SPHEREx (spherex.caltech.edu).

Experience (continued)	**Department of Physics & Astronomy, UC Riverside** *Graduate Student Researcher / Visiting Assistant Researcher*	2011 – 2014

- Developed GSNAP: An advanced analysis and visualization tool for galaxy simulations (www.GSNAP.org), depending only upon C++11 and the Qt Framework.
- Performed galaxy merger simulations on supercomputers.
- Analyzed the dynamical evolution of galaxy merger simulations.
- Built a 24-core GNU/Linux workstation to perform computational work on campus.
- Trained workstation users to effectively use SMP and NUMA hardware.
- Created the website, astro.ucr.edu, for astrophysics faculty, students, and postdocs.
- Mentored an undergraduate computer engineering student.

Assistant Instructor   Summer 2011

- Taught *Physics For Scientists and Engineers, part I* (classical mechanics).
- Supervised three teaching assistants.

Teaching Assistant   2008 – 2011

- Taught introductory physics lab courses.
- Led physics and astronomy discussions and review sessions.

School of Computational Sciences and Informatics, George Mason University
Graduate Research Assistant   2007 – 2008

- Generalized the Rice Convection Model (a computational model of Earth's inner magnetosphere) by accounting for the hemispheric asymmetry of the ionosphere.
- Implemented a prototype of the generalized model in MATLAB.

Oakton High School, Fairfax County Public Schools
Physics Teacher   2005 – 2007

- Taught standard High School Physics and Conceptual Physics.
- Evaluated the progress of approximately 100 students each year.

Grants	**Author of** *Hubble Space Telescope Theory Program AR-12626*	Funded, 2011 – 2013

  Paid for two years of tuition and salary as a graduate student researcher.

Awards	**Dissertation Year Program Fellowship Award** *Graduate Division, UC Riverside*	2012 – 2013

  Provided a stipend, tuition, and fees for two academic quarters.

Benjamin C. Shen Memorial Award   2012
Department of Physics & Astronomy, UC Riverside

  For "Outstanding Fourth-Year Graduate Student." ($500)

Robert T. Poe Memorial Graduate Scholarship Award   2010
Department of Physics & Astronomy, UC Riverside

  For "Outstanding Graduate Research by a Second-Year Graduate Student." ($500)