

Anthony Polloreno

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WORK EXPERIENCE

June 2016 - Present	<p>Software Engineer at Rigetti Quantum Computing</p> <p>Full stack software development. Wrote software drivers for vector network analyzers and spectrum analyzers in Python and software-defined radios in C++. Implemented control software for device characterization and bring-up. Codeveloped a database schema for tracking calibration and measurement data using Python, SQLAlchemy, and PostgreSQL. Managed database updates with alembic. Worked on an internal GUI for accessing database information, written in HTML and Jinja with Python. Built functionality in Rigetti's quantum compiler, using group theoretic techniques to enable fast simulation and benchmarking. Wrote customer facing code to access the quantum computer (pyQuil and Grove). Presently building control software to bring-up, characterize, and calibrate quantum computers. Primary responsibilities include maintaining and developing the software suite for experimental work through implementing new routines, new APIs for easily accessing and using database-backed calibration data, and reviewing code. Work primarily in Python, Julia and Common Lisp.</p>
June-Aug 2014	<p>Undergraduate Student Instructor for CS70 at U.C. Berkeley</p> <p>Worked as an undergraduate student instructor under James Cook for the summer offering of a course in discrete mathematics and probability in the Computer Science department. Taught a discussion section of 10 students twice a week, held office hours, wrote homework and exam problems, and ran review sessions.</p>
Jan-May 2014	<p>Reader for CS61A at U.C. Berkeley</p> <p>Graded homework, tests, and projects and held office hours for the introductory Computer Science course, taught by Paul Hilfinger.</p>

RESEARCH EXPERIENCE

September 2018 - October 2018	<p>Visiting Researcher at UT Austin</p> <p><i>Random Quantum Circuits</i></p> <p>Used Mathematica and Python to simulate properties of quantum random quantum circuits with Scott Aaronson.</p>
June 2015 - Jan 2016	<p>Student Intern at Sandia National Laboratories</p> <p><i>Quantum Computation, Control and Error Correction</i></p> <p>Did research with Kevin Young on using quantum optimal control to average away coherent noise using gradient-based methods (GRAPE) and optimization. Currently working to publish results, and open source a Python library using convex optimization routines to efficiently generate controls for quantum computers.</p>
July 2013 - July 2015	<p>Student Assistant at Lawrence Berkeley National Laboratory</p> <p><i>Beamline Optics, Reflection Zone Plates</i></p> <p>Worked with Dmitriy Voronov to develop elliptical grating patterns called reflection zone plates which allow for more efficient beamline signal transmission in the Advanced Light Source. Used Python to generate patterns for the gratings as .cif files for use by electron beam and laser lithography machines.</p>
Jan-May 2013	<p>Undergraduate Research Apprenticeship at U.C. Berkeley</p> <p><i>Animal Flight Laboratory, Hummingbird Flight</i></p> <p>Worked with graduate student Marc Badger to investigate how hummingbirds navigate natural vegetation. Learned about avian flight as well as animal handling, and was introduced to basic experimentation techniques, Arduino usage, and Mathematica.</p>

EDUCATION

Aug 2012 - May 2016	<p>B.A., Computer Science, Physics, and Pure Mathematics University of California, Berkeley</p> <p>GPA: 3.762</p>
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LANGUAGES AND FRAMEWORKS

Languages: Python, Julia, Common Lisp, SQL, Mathematica, Java, C

Frameworks: MPI, Docker, PostgreSQL, AWS, Atlassian

RELEVANT COURSEWORK

Computer Science	Structure of Computer Programs (61A)	Data Structure (61B)
	Machine Structures (61C)	Discrete Math and Probability (70)
	Algorithms (170)	Computability and Complexity (172)
	Combinatorics and Discrete Probability (174)	Quantum Computing (191C/294)
	Machine Learning (189)	
Mathematics	Honors Multivariable Calculus (H53)	Differential Equations (54)
	Real/Complex Analysis (104/185)	Topology (202A)
	Linear Algebra (110)	Abstract Algebra (113/250A)
	Set Theory (135)	Functional Analysis (202B)
		(1xx: upper division, 2xx: graduate)