William.Andrew.Simon@gmail.com
www.william-simon.com
github.com/simonwa7

William Simon

9889 Tamarack Trail,
Brecksville OH
216-544-9497

Mission: to use my background in physics, chemistry, and computer science to address the challenges facing the realization of effective universal quantum computation and to aid in its use to solve the problems currently facing humanity

Education

Tufts University **Somerville, MA**
B.S. Chemical Physics, Minor in Computer Science *Graduated May 2018*
Overall GPA: 3.76 Major GPA: 3.85, Minor GPA: 3.94
Honors: Magna Cum Laude, Stern Scholar, Sigma Pi Sigma

Relevant Coursework:
Physics: Modern Physics, Solid State Physics, **Quantum Theory**, Experimental Modern Physics
Chemistry: Advanced General Chemistry, Organic Chemistry, **Physical Chemistry**
Mathematics: Multivariable Calculus, **Linear Algebra**, Differential Equations, Math Modeling, Real Analysis
Computer Science: **Algorithms**, **Data Structures**, Web Programming, Discrete Math, **Computational Theory**

Work Experience

Tufts University, Quantum Chemistry and Computation Lab **Somerville, MA**
Research Assistant *June 2018 – Present*

- Designed interactions with High Performance Computing Cluster for Quantum Chemistry simulations of molecules up to 42 qubits
- Researched, implemented, and analyzed optimization algorithms for quantum circuits, accounting for time complexity and memory allocation for circuits longer than 91 billion gates with a reduction of more than 80% of gates in certain molecules
- Benchmarked and compared performance of transforms, simulations, and optimization algorithms for large scale circuits
- **Programming**: *Python, C++, C++ Extension Modules for Python, Cython, OpenFermion, qHipster, SVN*

Loyola University Chicago, School of Law **Chicago, IL**
Web Developer *Jan. 2018 – May 2018*

- Built website for the *Stand Up For Each Other!* initiative with incorporated automation for custom notification system
- **Programming**: *Node.Js*, *JavaScript*, *HTML5*, and *CSS3*

Tufts University, Academic Technology **Somerville, MA**
Fellow *June 2017 – June 2018*

- Transitioned raw HTML designs to functioning website using *Angular2* and *Django* frameworks in a fully modular system
- Developed capability for searching, filtering, and continuous rendering of various content
- Created predictive text functionality and custom result scoring system for searching based on *Apache Solr* and *MongoDB*

Tufts University, Academic Resource Center **Medford, MA**
Tutor *June 2016 – July 2017*

- Interacted one on one with students to support and develop their understanding of concepts in Math, Chemistry, and Physics

Leadership Positions

Tufts University, Men's Ultimate Frisbee Team, *Strategic Defensive Captain*

- Responsible for constructing and teaching theories and schemes while adapting to maximize player talents
- Developed code of conduct to hold players accountable for actions to drive constructive cultural change

COMAP, Mathematical Contest in Modeling, *Team Leader - Successful Participants*

- Encouraged collaboration among a team in a competition to use current data to model growth and development of world languages
- Accounted for inherent drivers of language growth such as economic relationships, social media impact, and political influence

Skills & Technologies

Advanced Laboratory Techniques: Vacuum tube operation, laser diffraction, liquid and gas chromatography, infrared spectroscopy, mass spectroscopy, muon decay, positron annihilation, Compton observation, Millikan oil drop
Technical Writing: LaTeX, error propagation, technical presentations and reports
Programming Languages: C++, Python, JavaScript, Q#, TypeScript, HTML5, CSS3
Software: jQuery, Node.Js, Express.Js, MongoDB, Mathematica, Matlab, OpenFermion, Psi4, qHipster, Angular2, Django, Bootstrap
Tooling: Git, SVN, Linux, Unix, Heroku, Valgrind