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William Simon

27 Upland Road, Somerville MA

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 with worst-case and amortized analysis for circuits longer than 76 billion gates
- Benchmarked and compared performance of transforms, simulations, and optimization algorithms for large scale circuits
- **Programming**: *Python, C/C++, 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, TypeScript, HTML5, CSS3
Software: jQuery, Node.Js, Express.Js, MongoDB, Mathematica, Matlab, OpenFermion, Psi4, qHipster, Angular2, Django, Bootstrap
Tooling: Git, SVN, Linux, Unix, Heroku
Team Web Development Project: *https://mix-master-dj.herokuapp.com*