

Will Tipton

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(909) 450-7997

- BACKGROUND** Software engineer, computational scientist
- SKILLS** Linux, C++, Java, golang. Some competence with many other technologies.
- EDUCATION**
- Cornell University, Ithaca, NY** 2008 – 2014
Ph.D., M.S., Materials Science and Engineering
Minor: Computational Science and Engineering
- Harvey Mudd College, Claremont, CA** 2004 – 2008
B.S., Physics
B.S., Computer Science/Math Joint
- WORK EXPERIENCE**
- SWE-SRE, Google 2014 – present
- Software Engineer/Site Reliability Engineer
 - Developing and maintaining infrastructure for the Google Play Store
 - Team lead for internal SRE-wide alerting-related software development project
- HMC Clinic Project, Laserfiche Corporation 2007 – 2008
- Led to “Camera-Based Document Imaging,” U.S. Provisional Patent Application #61/126,779.
- Linux Technical Support Intern, IBM, Durham, NC Summers 2004 and 2005
- Internal Linux and network administration and support
- CS Department Consultant, HMC 2004 – 2005
- SunOS administration
- ACADEMIC RESEARCH**
- Graduate Researcher* August 2008 – 2014
Cornell University
Adviser: Dr. Richard Hennig
- Developed an evolutionary algorithm in Java to predict atomic structure
 - Predicted materials’ phase diagrams in collaboration with experimentalists
 - Improved the methodology for developing empirical energy models
 - Predicted the properties of novel Li-ion battery electrode materials
 - Investigated errors in the application of quantum Monte Carlo to solids
 - Administered the research group’s Linux workstations and NIS/NFS network
 - Mentored six undergraduate researchers, resulting in two papers
- Computational Materials Science Research Intern* Summers 2007 and 2008
Massachusetts Institute of Technology (MIT)
Adviser: Dr. Gerbrand Ceder
- Developed a crystal structure prediction algorithm in Java
 - Implemented software for phase diagram visualization and manipulation in Java
- Applied Math Research Intern* Summer 2006
University of California: Los Angeles (UCLA)
Adviser: Dr. Andrea Bertozzi
- Helped design experiment to study the dynamics of a particle-laden slurry flow
 - Developed image processing and particle tracking software in Matlab

FELLOWSHIPS National Science Foundation GK-12 Fellow 2012 – 2013

- Helped develop renewable energy lessons for NY state high school students
- Taught local elementary and high school science classes

National Science Foundation IGERT Fellow 2010 – 2011

FIRST-AUTHOR SCIENTIFIC ARTICLES

- Ab-initio prediction of the Li₅Ge₂ Zintl compound. W. W. Tipton, C. A. Mathulis, and R. G. Hennig. *Comp. Mater. Sci.* 93, 133 (2014).
- Importance of high angular momentum channels in pseudopotentials for quantum Monte Carlo. W. W. Tipton, N. D. Drummond, and R. G. Hennig. *Phys. Rev. B* 90, 125110 (2014).
- A grand canonical genetic algorithm for the prediction of multi-component phase diagrams and testing of empirical potentials. W. W. Tipton and R. G. Hennig. *J. Phys.: Cond. Matter* 25, 495401 (2013).
- Structures, Phase Stabilities, and Electrical Potentials of Li-Si Battery Anode Materials. W. W. Tipton, C. R. Bealing, K. Mathew, R. G. Hennig. *Phys. Rev. B* 87, 184114 (2013).
- Random Search Methods. W. W. Tipton and R. G. Hennig. In *Modern Methods of Crystal Structure Prediction* (ed. A. R. Oganov), Wiley-VCH, Weinheim, Germany (2010).

RELEVANT COURSEWORK

At Cornell University

- Statistical Data Mining, Applied Stochastic Processes, Heuristic Methods for Optimization, Atomistic Modeling of Materials, Entrepreneurship Private Equity and Business Planning, Monte Carlo Simulation (current semester)

At Harvey Mudd College

- *Physics*. Mechanics, E&M, Quantum Physics, Quantum Mechanics, Statistical Mechanics, Electromagnetic Fields, Theoretical Mechanics, Classical Field Theory, General Relativity, Computational Methods in Physics, Fourier Series and Boundary Value Problems, Signals and Systems
- *Mathematics*. Multivariable Calculus, Linear Algebra, Differential Equations, Probability and Statistics, Discrete Mathematics, Scientific Computing, Real Analysis, Abstract Algebra
- *Computer Science*. Principles of CS, Data Structures and Program Development, Computability and Logic, Computer Systems, Large-scale Software Development, Programming Languages

HOBBIES Brazilian jiu-jitsu, Korean language, Poker. I developed a parallelized game theory code in C++ to compute Nash equilibria of large games and manipulate and visualize the large resulting data sets and then wrote a two-volume book series, *Expert Heads Up No Limit Hold 'em*. D&B Publishing. 2012 and 2013.