Data Scientist Data Scientist Data and Research Scientist Austin, TX Experienced data and research scientist presently looking for new opportunities to leverage my skills and interests in all things new to me. I'm a python/bash/Linux scientific software hacker and enjoy getting my hands dirty with large amounts of data. I have worked in the public and private sectors in areas ranging from computational chemistry to algorithmic trading to exercise physiology (to name a few). My education includes liberal arts, geological sciences, chemistry, and geographical information systems (GIS). I'm also a published author in fields including applied mathematics, chemical physics, computational drug design, and biophysics. I've run my own business and worked for a startup or two as well as larger organizations - as long as the work is engaging, I'm happy. If you think I'll make a good addition to your team, don't hesitate to contact me. Authorized to work in the US for any employer Work Experience Data Scientist BSX Athletics - Austin, TX December 2015 to June 2016 All-around data scientist, researcher, software developer, and part-time exercise physiologist. I specialized in gluing things together: data, schedules, platforms, and software. I developed, maintained, and implemented software solutions for aggregating, analyzing, and visualizing large amounts of physiological time-series data - and I oversaw the data collection process, too. I also conducted physiology testing protocols and managed, assimilated, visualized, and interpreted data from those tests. I got my hands dirty in all parts of physiology testing: If you came into our facilities for testing, you know how hands-on I am! I assisted our Marketing and Sales teams with data visualization and help explain technical narratives for larger audiences, via channels such as blog posts. I wrote software for our Customer Service team to ease parts of their workload and streamline server-side data reprocessing workflow. Finally, I supported optical engineering and hardware/firmware development teams when needed. Python Developer Texas Water Development Board - Austin, TX June 2015 to December 2015 Worked on scientific applications (standalone and web-based). Maintained and extended a GUI-based application (python) used for extracting sedimentation rates in reservoirs and lakes monitored by the TWDB. Assisted in adding functionality and maintaining web-based (python, flask, celery, ansible, redis, jinja2) applications for real-time monitoring, aggregation, and dissemination of water-related data for

the state of Texas (Water Data for Texas). GIS Technician City - Austin, TX November 2014 to June 2015 Performed routine and advanced (scripting in python/arcpy, spatial analysis, geoprocessing) GIS tasks with data relating to watersheds in the Austin metropolitan area. Worked in desktop and ArcSDE environments. Modeled geochemical evolution of groundwater using PHREEQC in a collaboration with the Water Quality Protection division. Managing Principal Bicycle Trading, LLC - Austin, TX March 2011 to July 2014 Designed and built all infrastructure supporting automated algorithmic trading of futures, equities, and foreign exchange instruments in the U.S. and Europe. Curated extremely large data sets used for time-series analysis of futures and equities products and developed predictive models and wrote proprietary pricing algorithms. Administered and optimized MySQL databases. Traded own funds, net return 39.80%. Software Developer Enthought, Inc. - Austin, TX February 2013 to July 2013 Developed scientific software for applications in the oil and gas industry. Specialized in integrating proprietary workflows and algorithms with Schlumberger's Techlog platform. Implemented algorithms for augmenting functionality of Techlog to include calculating rock physics properties. Research Scientist RGM Advisors, LLC - Austin, TX December 2005 to March 2010 Led research efforts for expanding the futures asset class in the U.S. and Europe. Responsible for building and maintaining models trading 75 symbols on 12 exchanges. Conceived of and implemented novel signal convolution formul that enhanced profitability of equities, futures, and foreign exchange trading by $10MM/year. Directly responsible for $15MM/year in net trading profits. Contractor Targacept, Inc. - Winston-Salem, NC February 2000 to November 2005 Increased computational accuracy and decreased lead discovery time for neuronal nicotine receptor drug targets implicated in Alzheimer's disease and schizophrenia. Enhanced computational drug design platform to include quantum mechanical effects via the Car-Parrinello formalism. Personally constructed and copyrighted a putative crystal structure for human ?7 homopentameric neuronal nicotine receptor, presently licensed and in use. Lecturer University of Texas - Austin, TX August 2004 to January 2005 Taught undergraduate course in general chemistry. Assistant Professor University of Colorado - Denver, CO August 2002 to November 2003 Researched drug discovery methods and structure-function relationships in motor proteins.

Awarded $2MM NIST Advanced Technology Project grant in collaboration with Targacept, Inc. and Princeton University (award number 00-00-5629: New Software Tool for Improving Drug Discovery and Development). Taught undergraduate and graduate courses in general chemistry, computational chemistry, and protein chemistry. Postdoctoral Fellow and Lecturer Princeton University - Princeton, NJ February 2000 to August 2002 Worked for Roberto Car, and designed Car-Parrinello molecular dynamics simulations to better understand how motor proteins convert chemical energy to mechanical force. Published research findings from investigations of motor protein function that yielded the first evidence of the specific pathway of hydrolysis of ATP in myosin.

Team-taught (with Andy Bocarsly and Bob Cava) undergraduate courses in general chemistry and materials science. Postdoctoral Fellow and Lecturer University of California - San Francisco, CA February 1999 to January 2000 Worked for Peter Kollman, and used classical molecular dynamics tools (AMBER) to simulate the interaction of ligands with motor proteins. Collaborated with Roger Cooke (UCSF) and Ed Pate (WSU). Taught graduate laboratory course in physical chemistry. Education Certificate in GIS and Cartography Austin Community College District - Austin, TX 2014 to 2014 PhD in Chemistry University of Texas - Austin, TX 1995 to 1999 MA in Geological Sciences University of Texas - Austin, TX 1993 to 1995 BA in International Relations Lehigh University - Bethlehem, PA 1987 to 1991 Skills Python (5 years), Linux (10+ years), Machine Learning, Data Mining, Signal Processing, Algorithmic Trading, UNIX Administration, Scientific Programming, High-Performance Computing, Numerical Analysis, Applied Mathematics, ArcGIS (3 years), Research (10+ years), Statistical Analysis (10+ years) Links https://www.linkedin.com/pub/todd-minehardt/b8/330/164 https://github.com/toddjm Awards Welch Teaching Excellence Award 1995 Dreyfus Foundation Fellowship 1996 Dreyfus Foundation Fellowship 1997 University of Texas Continuing Fellowship 1998 University of California President's Postdoctoral Fellowship 1999 Princeton University Council on Science and Technology Postdoctoral Fellowship 2000 Certifications/Licenses Geoscientist-in-Training December 2014 to December 2016 License GIT-98. Geoscientist-in-Training. Publications Enhanced matrix spectroscopy: The preconditioned Green-function block Lanczos algorithm

http://pre.aps.org/abstract/PRE/v56/i4/p4837_1 1997-10 Quasi-classical dynamics of benzene overtone relaxation on an ab initio force field: 30-mode models of energy flow and survival probability for CH(v=2) http://www.sciencedirect.com/science/article/pii/S0009261498009944 1998-10-16 Quasiclassical dynamics of benzene overtone relaxation on an ab initio force field. I. Energy flow and survival probabilities in planar benzene for CH(v = 2,3) http://jcp.aip.org/resource/1/jcpsa6/v109/i19/p8330_s1?isAuthorized=no 1998-11-15 Quantum dynamics of overtone relaxation in 30-mode benzene: A time-dependent local mode analysis for CH(? = 2) http://jcp.aip.org/resource/1/jcpsa6/v110/i7/p3326_s1?isAuthorized=no 1999-02-15 Quasi-classical and quantum dynamics of benzene overtone relaxation: early time (t?240 fs) intramolecular vibrational energy redistribution for CH(v=2) in a 15-mode model http://www.sciencedirect.com/science/article/pii/S0009261499001402 1999-04-09 Energy partitioning and normal mode analysis of IVR in 30-mode benzene: overtone relaxation for CH(v=2) http://www.sciencedirect.com/science/article/pii/S0009261499002547 1999-04-16 Quantum dynamics of intramolecular vibrational energy redistribution for initally excited CC ring modes in 30-mode benzene http://www.sciencedirect.com/science/article/pii/S0009261499009914 1999-10-29 Molecular Dynamics Study of the Energetic, Mechanistic, and Structural Implications of a Closed Phosphate Tube in ncd http://www.sciencedirect.com/science/article/pii/S0006349501760924 2001-03 A Classical and Ab Initio Study of the Interaction of the Myosin Triphosphate Binding Domain with ATP http://www.sciencedirect.com/science/article/pii/S0006349502754295 2002-02 Closing of the Nucleotide Pocket of Kinesin-Family Motors upon Binding to Microtubules http://valelab.ucsf.edu/publications/2003nabersci.pdf 2003-05-02 Protonation-induced stereoisomerism in nicotine: Conformational studies using classical (AMBER) and ab initio (Car Parrinello) molecular dynamics http://link.springer.com/article/10.1007%2Fs10822-005-0096-7 2005-01 The Open Nucleotide Pocket of the Profilin/Actin X-Ray Structure Is Unstable and Closes in the Absence of Profilin http://www.sciencedirect.com/science/article/pii/S0006349506724274 2006-04-01

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