

Burak Himmetoglu, Ph. D.

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Profile

Data Scientist and High Performance Computing (HPC) specialist with Ph. D. in physics. Has strong mathematical modeling, data analysis, and programming background. Passionate about applying academic skills to solve difficult business problems and to develop data products.

Work Experience

HPC Specialist, UC Santa Barbara, CA 2015-Present

Served as the scientific computing consultant to UCSB. Developed the RoboBohr package, which is a machine learning based electronic structure prediction framework for chemical discovery (<https://github.com/bhimmetoglu/RoboBohr>). Taught workshops for R programming.

Post-doctoral Researcher, UC Santa Barbara, CA 2013-2015

Conducted research in computational materials science. Developed state of the art methods and algorithms for predicting properties of materials at the quantum mechanical level.

Post-doctoral Researcher, University of Minnesota 2010-2012

Conducted research in computational materials science. Developed algorithms for numerical simulations of quantum mechanical systems and contributed to the open source materials modeling package Quantum ESPRESSO.

Technical Skills

Statistics and Machine Learning: Classification, regression, decision trees, ensemble models, support vector machines, unsupervised learning, neural networks. Specialized Python & R libraries: Pandas, Tensorflow, Scikit-learn, Tidyverse, Data.table.

Programming Languages: Fluent: Python and R. Intermediate: C/C++ and Matlab.

Parallel computing and distributed data processing: Intermediate: OpenMP, MPI. Familiar: Spark, Hadoop.

Education

University of Minnesota, Twin Cities, MN — Ph.D. Physics, 2010

Selected Publications

Authored over 30 journal publications. Complete list available upon request.

1. Tree based machine learning framework for predicting ground state energies of molecules, Journal of Chemical Physics **145**, 134101 (2016), **B. Himmetoglu**.
2. Searching for high magnetization density in bulk Fe: the new metastable Fe₆ phase, Journal of Physics: Condensed Matter **27**, 016001 (2014), K. Umemoto, **B. Himmetoglu**, J. -P. Wang, R. M. Wentzcovitch, and M. Cococcioni.