Mahdi Davari · Postdoctoral Associate · Stony Brook, New York · **Mahdi.Davari@Stonybrook.edu** · +1 631 276 0412

Mahdi Davari | Resume

- Status: Developer at the Center for Materials by Design, Ph.D. in Computational Science
- Skills: **Programming:** Python, R Studio, Bash, MATLAB, SQL, HTML, CSS and working knowledge of C++

  Machine Learning: Regression, K-nearest Neighbors, Decision Trees, Cluster Analyses

  Software: Spark and Hadoop, Amazon Web Services, PosgreSQL, Git and Github, MongoDB, JetBrains Suite, GitKraken

  Others: Data Visualization, Modeling, Statistics, Debugging
- Interests: Data Science, Machine Learning, Data Analysis

Summary

While searching for a Software Engineer/Data Science position in the tech industry, I am working in the computational materials science lab as a researcher. We develop novel methods for computational materials discovery, and apply them to a wide range of exciting scientific problems. Using crystal chemistry approaches, we study fundamental properties of materials at the atomic scale. Our in-house developed package is integrated with various first-principles electronic structure packages.

Experience

'18/01 — now **Postdoctoral Research Associate** Stony Brook University, NY

- Research Focus: Crystal structure prediction, superconductivity, deep interior of the Earth and high pressure physics/chemistry
- Implemented FPTE package with more than 2000 lines of code in Python

'14/01 - '17/12 **Scientific Software Developer** Center for Materials by Design, NY

- Designed and developed crystal structure prediction algorithms, implemented in USPEX code (used by over 4000 researchers worldwide)
- Implemented a descriptor of structure (fingerprint function), enabled quantification of energy landscapes of 2D materials
- Developed a method for two-parameter optimizations, enabled the search for materials with desired properties along with the stability

'13/08 - '17/12 **Graduate Research Assistant** Stony Brook University, NY

- Co-authored a book chapter, published 12+ papers, 4 invited/contributed talks at conferences
- Designed and modeled new inorganic materials with desired properties using ab *initio* methods
- Predicted novel compounds under high pressure conditions (borides, hydrides, oxynitrides, etc)

'14/01 - '17/10 **HPC System Administrator and webmaster** Center for Materials by Design, NY

- Designed, developed and managed USPEX website and user database on SQL databases
- Configured and managed high performance computing cluster on Red Hat/Debian platform

Education

2018 - now **Data Science Bootcamp** New York, NY

2013 - 2017 **Ph.D. in Computational Chemistry/Physics** Stony Brook University, NY

- Main subjects: Computational materials discovery, crystallography, materials properties, superconductivity, energy materials and high pressure physics/chemistry

2010 - 2012 **M.SC. in Condensed Matter Physics** Isfahan University of Technology, Iran

- Main subjects: Computational physics, optical properties and TDDFT

2005 - 2010 **B.Sc. in Condensed Matter Physics** University of Isfahan, Iran