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ADRIAN W. LANGE

SCIENTIST + DEVELOPER

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(330) 289-4955

EMPLOYMENT

Software Developer **BrightTag, Inc.** **August 2013 – Present**

- Developing data storage models and algorithms to match and combine user/client data from multiple sources
- Improving back-end interface to distributed NoSQL (Cassandra) database containing over a billion records
- Creating a real-time anomaly detection and network traffic forecasting system

Postdoctoral Appointee **Argonne National Laboratory** **March 2012 – August 2013**
Leadership Computing Facility

- Joint position within University of Chicago research group of Prof. Gregory A. Voth
- Developed/optimized algorithms for massively parallel chemistry simulations on IBM Blue Gene/Q supercomputer; increased simulation code speed more than 8x, scalability to ∼0.4 million cores
- Devised a quantum proton transport model based on electronic structure fragment models

Ph.D. Student Researcher **The Ohio State University** **June 2007 – March 2012**

- Published 10 first author journal articles; 300+ total citations, h-index 6 (see my Google Scholar Citations)
- Invented mathematical model for solvent electrostatics, algorithm for building molecule surfaces, stochastic optimization for load balancing numerical integrals; applied to simulate excited electrons in DNA

EDUCATION

Columbus, OH **The Ohio State University** **August 2003 - Spring 2012**

- **Ph.D.** Computational/Physical Chemistry (GPA: 3.65) Advisor: Prof. John M. Herbert
- **B.S.** Chemistry with minor in Microbiology (GPA: 3.39)

  Formal coursework:

  – Graduate/undergraduate: Quantum mechanics, Statistical thermodynamics, Computational chemistry, Multivariable calculus, Linear algebra, Differential equations, Computer programming, Numerical methods

  Supplemental online courses:

  – Coursera: Machine learning, Data science, Databases; Udacity: Web development, GPU programming

TECHNICAL SKILLS

- **Proficient**: Java, Python, C++, C, Unix/Linux shell (bash), awk, NoSQL (Cassandra)
- **Familiar**: HTML, CSS/SCSS, Javascript/jQuery/node.js, SQL (MySQL), Fortran
- **Tools/Miscellaneous**: git, vim, LaTeX, MPI, OpenMP, Guava, Guice

ADDITIONAL EXPERIENCE/PROJECTS

View some code I have written at GitHub: https://github.com/awlange

- **Personal Website** (2013–Present): http://adrianlange.com Back-end to front-end; about me and blog (HTML, CSS/SCSS, JavaScript/jQuery, node.js, MySQL)
- **Project Euler** (2013–Present): Recreational mathematics and programming problems for fun from http://projecteuler.net; currently solved 86 problems (C++, Python)
- **LAMMPS Ensembles** (2013): Multi-copy communication interface to open-source software, LAMMPS; contributions to main LAMMPS source code (C++, C, MPI, OpenMP, Python)
- **Q-Chem v4.0** (2009–2013): Lead author of polarizable continuum model and QM/MM codes in commercial software package, Q-Chem; One of six software design committee members (C++, C, Fortran)

HONORS AND AWARDS

- Chair's Prime Choice in Computational Division at American Chemical Society Conference (2013)
- Presidential Fellowship from The Ohio State University Graduate School (2011 - 2012; $33,150)
- Chemical Computing Group Research Excellence Award from American Chemical Society (2012; $1,150)
- U.S. Department of Energy Merit Scholarship for top poster presentation (2010; $400)
- American Society for Microbiology Undergraduate Research Fellowship (2006; $4,000)
- Ohio State Arts & Sciences Undergraduate Honors Research Scholarship (2006; $3,500)