Adrian W. Lange

Scientist + Developer

Employment

Software Developer **August 2013 – Present**

BrightTag, Inc.

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

Postdoctoral Appointee **March 2012 – August 2013**

Argonne National Laboratory Leadership Computing Facility / University of Chicago

- Optimized massively parallel ($\sim$0.4 million cores) chemistry simulations on IBM Blue Gene/Q supercomputer
- Devised quantum proton transport model based on electronic structure theory; simulated annealing parameterization

Ph.D. Student Researcher **June 2007 – March 2012**

The Ohio State University

- Published 10 first author journal articles; total 14 publications, 320+ citations, h-index 6 (Google Scholar Citations)
- Invented mathematical model for solvent electrostatics, geometrical algorithm for constructing molecule surfaces, stochastic optimization for load balancing numerical integrals; applied to simulate excited electrons in DNA

Education

Ph.D. Computational/Physical Chemistry **June 2007 – March 2012**

The Ohio State University

B.S. Chemistry, minor in Microbiology **August 2003 – June 2007**

The Ohio State University

Supplemental online courses (Coursera & Udacity): Databases, Data science, Machine learning, Web development

Technical Skills

	Languages	Tools/Technologies
Proficient	Java, Python, C, C++, Unix/Linux shell (bash), awk	NoSQL (Cassandra), git, vim, LaTeX, MPI, OpenMP
Familiar	HTML, CSS, JavaScript, SQL (MySQL), Fortran	NumPy, SciPy, pandas, CUDA, Guava, Guice

Additional Experience/Projects

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

- **Personal Website** (2013–Present): adrianlange.com; Back-end to front-end from scratch; dynamic content blog (HTML, CSS/SCSS, JavaScript/jQuery/node.js, MySQL)
- **Project Euler** (2013–Present): Recreational mathematics and programming problems from projecteuler.net; currently solved 96 problems (C++, Python)
- **LAMMPS Ensembles** (2013): Multi-copy communication interface to open-source molecular dynamics 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 chemistry 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)