Laura Watkins

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SUMMARY

- Computational chemist with 7 years of experience in biophysical research pursuing a data science career
- Experienced in large-scale data analysis and visualization using Python
- Demonstrated abilities to initiate and lead collaborative projects through departmental leadership roles

EDUCATION

University of Chicago (Chicago, IL): *PhD Physical Chemistry, Advisor: Gregory Voth* *Expected December 2021*

- *Fellowship*: Department of Energy Computational Sciences Graduate Fellowship (selective; <5% acceptance)
- *Thesis focus:* Using computer simulations and statistical analysis to understand mechanisms of proton transport in biomedically relevant and designed proteins, in collaboration with experimentalists

Washington University in St. Louis (St. Louis, MO): *B.A. in Chemistry* *May 2015*

- **GPA:** 3.89; **Honors:** *magna cum laude*

WORK EXPERIENCE

University of Chicago, Department of Chemistry (Chicago, IL)
Graduate Researcher, Laboratory of Professor Gregory Voth *Fall 2015-Present*

- Researches mechanisms of proton transport in influenza A M2 to provide insight for drug-design efforts
- Exploratory analysis in Python of ~1TB simulation data, developed new approach for studying protein changes correlated with proton position, resulting in two publications in top chemistry journal
- Writes and assists in submission of competitive NIH grants worth ~$1 million

Teaching Assistant for General Chemistry *2015-2016*

- Led weekly discussion sections, laboratory experiments, office hours for three quarters
- Received Nathan Sugarman Teaching Award given to top 3 TAs

Los Alamos National Laboratory (Los Alamos, NM)
Visiting Research Assistant, with Staff Scientist Art Voter *Fall 2017*

- Used DBSCAN clustering and one-class SVM anomaly detection to develop extension to Accelerated Molecular Dynamics methods, written as Python module using Scikit-learn

SELECT LEADERSHIP ACTIVITIES

Co-chair of Chemistry Department Culture Committee, University of Chicago *2018-2019*

- Crafted vision and set direction for faculty and student committee, planned biweekly meetings
- Resulted in department Value Statement, Mentorship Guidelines, and critical policy improvements

Chemistry Department Ombudsperson, University of Chicago *2018-2019*

- Organized department student mentorship program, led new initiatives, discussed ideas with Chair

TECHNICAL SKILLS AND COURSEWORK

- **Programming:** Python 6+ years (NumPy, Pandas, Matplotlib, scikit-learn, SciPy, Jupyter), C/C++, Bash, MPI
- **Data analysis:** Machine learning techniques (linear regression, SVM, clustering), enhanced sampling methods
- **Coursework:** Machine Learning, Algorithms, Advanced Statistical Mechanics, High Performance Computing, Numerical Analysis for Statistics and Applied Mathematics, Stochastic Simulation, Quantum Mechanics