Laura Watkins

Email: lcwatkins21@gmail.com | Website: https://lcwatkins.github.io

SUMMARY

- Senior PhD data scientist with 8+ years of experience in analytics, modeling, experimental design, research
- Experienced in data extraction, statistical analysis, machine learning, and visualization using Python and SQL
- Excited to initiate and lead collaborative projects; demonstrated ability through graduate school leadership roles

TECHNICAL SKILLS

- **Programming**: Python (NumPy, Pandas, Matplotlib, scikit-learn, TensorFlow, Jupyter), SQL, Bash , C++
- **Data analysis and tools:** Machine learning techniques (GLMs, neural networks, NLP, SVM, clustering), AWS
- **Coursework:** Machine Learning, Algorithms, Advanced Statistical Mechanics, High Performance Computing, Numerical Analysis for Statistics and Applied Mathematics, Stochastic Simulation, Quantum Mechanics

WORK EXPERIENCE

Kemper Insurance (remote) *Data Scientist 2, Senior Data Scientist as of Oct. 2024* *2022-present*

- Led small team to develop generalized linear models (GLM) claim frequency models and implement a tool to explain the change in frequency over time; regularly presented updates, results, and insights to key business partners; created modular code framework and maintained pipeline for data pulling, processing, and scoring.
- Managed one junior data scientist: maintained weekly check-ins, directed priorities, oversaw project progress
- Wrote SQL query to pull a historical snapshot view of claims attributes from previously unused database to use for building a claim severity model. Engineered merge logic to increase policy match rate to 99%
- Built natural language processing (NLP) models in TensorFlow to predict car accident characteristics based on free-form descriptions as part of first team in the department to develop NLP capabilities, including a model to predict claims likely to have costs available to recoup from third-parties: est. annual saving benefit of $4.1 M
- Developed GLM auto insurance pricing models in effort to revamp pricing for Kemper's primary product from scratch, then expanded these models for internal use to identify less profitable customer segmentations
- Contributed a Python class to team code base to automate the creation of excel spreadsheets with hundreds of tabs and figures, saving hours of time

University of Chicago *Graduate Researcher, Laboratory of Professor Gregory Voth* *2015-2021*

- Researched mechanisms of proton transport in influenza A M2 to provide insight for drug-design efforts by running simulations on supercomputer clusters and performing analysis with Bash, Python, statistical mechanics
- Exploratory analysis in Python of ~1TB simulation data, developed new approach for studying protein changes correlated with proton position, explained drug efficacy, resulting in two publications in top chemistry journal
- Designed and managed independent research projects, communicated results to non-technical experimentalists
- Wrote and assisted in successful submission of competitive NIH grants worth ~$1 million

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

- Used DBSCAN clustering and one-class support vector machine (SVM) anomaly detection to classify sampled points in real-time during a simulation, written as Python module using scikit-learn. See walkthrough on website

EDUCATION

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