

## Professional Experience

### Pacific Northwest National Laboratory

[September 2021 – present]

#### Computational Scientist

- Used **machine learning**, chem-informatics screening, and electronic structure theory to design and optimize a discovery pipeline of light-trapping molecules for photovoltaics.
- Established pipeline for cleaning and analyzing collected research data.
- Built chemical recognition library with **Pytorch**.
- Developed **regression models** with data from large molecular simulations on 1000s of CPUs to study the solvated electron in water clusters.
- Utilized **expertise in physics and mathematical modeling** to write software for computational chemistry applications.
- Outstanding Performance Award.

### OutlierAi

[November 2023 – present]

#### Scientific Domain Expert/Reviewer

- Prompt Engineering. Supervised data generation and analysis for training **science/math-capable LLM** models, enhancing the reliability and accuracy of AI technologies by **~10%**.

### University of Colorado, Denver

[August 2019 – August 2021]

#### Computational Scientist

- Saved over **\$30k/year** in computational resources by designing workflows for fitting new data into the PM6 and PM7 semi empirical methods using conventional and **AI algorithms**.
- Computed and analyzed dispersion correction methods from **large molecular datasets** comprising ~1000 molecular systems.
- Co-managed graduate and undergraduate research students. Guided students to master's thesis.

### Iowa State University

[August 2014 – July 2019]

#### Chemistry Researcher / Data Analyst

- **Refactored and modernized** 40+ year legacy code for the GAMESS computational chemistry software.
- Developed and programmed novel **high-performance computational** methods for the GAMESS software.
- On-boarded junior members of the group.
- Received multiple awards for research and teaching

## Education

- *University of Texas, Austin* – M.S. in Data Science [2024 – Present]
- *Iowa State University* - Ph.D. in Computational Physical Chemistry [2014 – 2019]
- *Kutztown University of PA* - B.S. (*Summa Cum Laude*) in Biochemistry & Mathematics [2010 – 2014]

## Software and Programming Skills

**Programming Languages:** Python, R, C, F#, Scala, Javascript, Julia, Fortran

**Data Science / ML:** SQL, NumPy, Pandas, SciPy, PyTorch, Scikit-Learn, Spark

**Technologies:** Data Visualization (Jupyter Notebooks), Big Data Analytics, Parallel Programming

**Software:** UNIX, Bash, Git, LaTeX

**General:** Technical Writing, Peer-review publishing (12), Teaching