

# Patrick J. Lestrangle

✉ patricklestrange@gmail.com | ☎ (732) 668-7305 | 📍 Seattle, WA | 📷 plestran | 🌐 patrick-j-lestrangle

## Skills

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**Programming Tools** Python, Fortran77/90, C++, LaTeX, Shell Scripting, SQL, Perl, Javascript  
**Data Science** Scikit-learn, XGBoost, SciPy, Pandas, Seaborn, NLTK, Flask, Jupyter  
Generalized Linear Models, Tree-based Regression and Classification, Feature Engineering, Topic Modeling, Web Scraping

## Experience

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### Insight Data Science

Seattle WA

Fellow

Jan. 2018 - present

- Built *Gefilter Fish*, a Chrome extension to cluster Amazon reviews into topics and reduce redundancy by greater than 15% compared to a current feature on the website.
- Designed an interface to display these topics when viewing a product on Amazon's website. It also returns summaries of the reviews focused on that topic.
- Performed sentiment analysis using a database of 1.7M reviews to determine the perception of specific aspects of a product.
- Used Python, Javascript, SQL, web scraping, and natural language processing techniques such as lemmatization, tf-idf, and non-negative matrix factorization.

### University of Washington

Seattle WA

Graduate/Postdoctoral Researcher

Sep. 2012 - Dec. 2017

- Developed an algorithm to describe how molecules interact with X-ray lasers. This technique was up to 1000 times faster than previous approaches and is now available in the commercial software package Gaussian16 (Fortran77).
- Implemented nonlinear optimization algorithms to converge quantum mechanical wave functions in  $\sim 10$  times fewer steps (C++).
- Collaborated with a team of 10 experimental researchers to model how muscular proteins bind and release small molecules and how this process can be tracked with X-ray lasers.
- 11 peer-reviewed publications, 5 oral presentations, 4 conference posters.

### Gaussian, Inc.

Wallingford, CT

Research Intern

Summer 2012 & Winter 2013

- Worked with a team of 5 software developers to implement an algorithm to evaluate the energy of a molecular system up to 30% faster.

## Education

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### University of Washington

Seattle, WA

Ph.D. in Chemistry

Sep. 2012 - June 2017

### York College of Pennsylvania

York, PA

B.S. in Chemistry

Sep. 2008 - May 2012

## Honors & Awards

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2017 **Excellence Award**, American Chemical Society Chemical Computing Group

2014 **Honorable Mention**, NSF Graduate Research Fellowship

2013 **Honorable Mention**, NSF Graduate Research Fellowship

2011 **ACS Representative**, UN Climate Change Conference (COP17 in Durban, South Africa)