

# Tyler Wied

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## DATA SCIENCE SKILLS

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- **Programming:** Python, SQL, NoSQL, R, Unix/Bash
- **Machine Learning:** supervised (logistic & linear regression, random forests, support vector machine, k-nearest neighbors, naive bayes), unsupervised (PCA, k-means clustering, hierarchical clustering), feature engineering, natural language processing, network analysis, time series, simulations
- **Statistics:** experimental design, bootstrap, probability, A/B tests, ANOVA,  $\chi^2$  tests, Monte Carlo
- **Tools:** pandas, scikit-learn, NumPy, Jupyter, Matplotlib, Seaborn, Git, gensim, NLTK, Dash, MPI

## EXPERIENCE

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- **Insight Data Science** Seattle, WA  
*Data Science Fellow* Jan 2019 - Present
  - Consulted for a hedge fund to identify key trends across five major cryptocurrencies.
  - Developed project roadmap and architected solution using **machine learning**, NLP (topic modeling, sentiment analysis), and network analysis.
  - Delivered results in an interactive dashboard that displays networks, attitude levels, and the top 20 topics across **200k+ Tweets and 25k+ Twitter users**.
- **Johns Hopkins University School of Medicine** Baltimore, MD  
*Post-Doctoral Research Fellow & PhD Candidate* 2012 - 2019
  - Discovered important flexibility in a protein essential for cognitive function from **10+ TB of simulation data**, numerical analysis, and **unsupervised machine learning** (principal component analysis).
  - Developed algorithm to **automatically classify** millions of simulation "snapshots" into a small number of discrete states to create simple, interpretable models.
  - Wrote Python scripts to validate simulation results with respect to real-world observations using statistical tests ( $\chi^2$  test), resulting in **6-fold improvement** over previous predictions.
  - Engineered 10x simulation speed-up by **parallelizing** jobs on cluster compute nodes using MPI.
  - Collaborated cross-functionally to identify promising targets in a toxin study by combining diverse datasets and engineering key features, **reducing search space more than 90%**.
  - Led 10 students in experiments and project management across four research projects.
- **University of Wisconsin-Madison** Madison, WI  
*Research Assistant* 2009 - 2012
  - Developed first genetic mouse model of mania, which is now used to understand mania in humans.
  - Used one-way ANOVA to identify **15+ statistically significant** indicators of mania.
  - Isolated the individual contributions of key features affecting DNA stability across more than 50 experimental conditions in MATLAB, enabling prediction with those features in future studies.

## EDUCATION

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- **Johns Hopkins University School of Medicine** Baltimore, MD  
*PhD, Biophysics (National Science Foundation Graduate Research Fellow)* 2012 - 2018
- **University of Wisconsin-Madison** Madison, WI  
*BS, Biochemistry (Honors in Research)* 2008 - 2012