

# Peter Jourgensen

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## Education

University of California, Los Angeles, Los Angeles, CA.

expected 12/19

Masters of Science in *Computer Science*

- GPA: 3.7/4.0

Northwestern University, Evanston, IL.

2015

Bachelors of Science in *Applied Mathematics* | Minor in *Economics* | Certificate in *Financial Economics*

- Major GPA: 3.8/4.0, *Cum Laude*

## Skills

- **Programming:** Python, R, MATLAB, SQL
- **Mathematics:** Statistical tests/distributions/aggregators, Markov Chains, Gradient Descent
- **ML/AI:** Filtering, Cross-validation, Grid-search, SKLearn pipeline, Tree-based models, CNNs, LSTMs

## Research Experience

Heatwave Prediction

2019-present

*Longlead Prediction of Extreme Heat Events for Agricultural Planning; Advisor: Karen McKinnon*

- Developed object-oriented pipeline to detrend and deseasonalize the data; leveraged numpy and xarray libraries for vectorized computing
- Developed object-oriented pipeline for neural network construction with keras and tensorflow to easily facilitate parameter tuning and results storage
- Employed ftplib, netCDF4, and xarray libraries to facilitate download and memory management of 34 years of Sea Surface Temperature data (720x1440 data grid per day)
- Leveraged GPU access via the Google Cloud Engine for model training; final results still TBD

National Health and Nutritional Examination Survey (NHANES) Analysis

2019

*Assessing Patient Cancer Risk for Advance Warning and Preventative Care; Advisor: Majid Sarrafzadeh*

- Developed object-oriented architecture with python and SKLearn to seamlessly pipeline feature selection and model tuning for ease in building, running, and testing various processes
- Hand selected features based on prior cancer research and personal hypotheses
- Performed missing value imputation, outlier handling, and categorical encodings via proprietary preprocessing functions
- Achieved 90.4% accuracy and 24.2% recall with GBDT model on held out test set

Gene Selection & Acute Leukemia Classification

2019

*Identifying Significant Genes for Acute Leukemia Classification; Advisors: Bogdan Pasaniuc, Jason Ernst*

- Managed and processed a dataset of 72 patients and 9000+ gene expressions with pandas and numpy
- Applied bootstrapping to an ANN developed with tensorflow in an attempt to identify key gene combinations related to Acute Leukemia
- Developed scoring algorithm to rank each gene based on its predictive capabilities when working in combination with other genes
- Grid searched over the number of top scoring genes to optimize a KNN model for final prediction; identified the top 48 genes as the optimal combination and achieved 97.2% prediction accuracy on held out test set

## Professional Experience

Valkyrie Trading LLC, Chicago, IL.

Trader

2017-2018

Junior Trader

2015-2017

- Generated ~1% increase in market share of 10-year note options by analyzing time series data and developing company's first risk model to price calendar spread option strategies
- Achieved net profits of >\$1,000,000 while leading a team of 3 in the collaborative execution and risk management of fixed income future options
- Trained 3 Junior Traders; empowered each to independently manage their own portfolios