Alex Heilman, Ph.D. Data Scientist Seattle, WA

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Summary

Data Scientist with a Ph.D. in Chemical Engineering and a uniquely broad background spanning mathematics, programming, engineering, and design. A fast, avid learner with an aptitude for algorithmic thinking, a passion for tool-building, and an innate reluctance to step away from unsolved puzzles.

Technical Skills

Data Modeling
- Linear / logistic regression
- NLP / Naïve Bayes
- Random Forest
- Gradient Boosting
- Clustering (DBSCAN, k-means)
- Dim. reduction (PCA, autoencoding)
- Recommender systems (SVD, NMF)
- Graph-based clustering / modeling

Python
- NumPy
- Pandas
- Scikit-Learn
- Matplotlib
- NLTK
- PyMongo
- NetworkX
- Selenium
- PySpark
- Flask

Big Data
- AWS
- PostgreSQL
- Spark
- MongoDB

Statistical Methods
- Frequentist, Bayesian, and probabilistic approaches
- Significance testing
- A / B testing
- Regression coef. analysis

Web Skills
- Scraping
- HTML

Other
- Git
- CRISP-DM

Data Science Projects

Online recipe aggregator | Apr. 2019 | github.com/alexanderheilman/recipe-vectorizer

Project goal: *Create a tool that improves the online recipe search by collecting and analyzing recipes for any given dish and using graph-based clustering to combine them into a few optimal, authentic recipes.*

- Automated scraping of online recipe data using Selenium-based Python scripts hosted on EC2 instances.
- Developed methodology for vectorizing recipes by parsing ingredient lists and standardizing quantities.
- Employed DBSCAN clustering and graph-based techniques (using NetworkX) to evaluate similarity of recipes and identify cluster centers representing the most authentic versions of several common dishes.

Real-time fraud detection tool | Mar. 2019

Project goal: *Create an interactive web app that uses a Random Forest Classifier to evaluate a live stream of event listings and allows internal fraud investigators to manually inspect potentially fraudulent listings.*

- Designed and built the front and back ends of the web app using HTML / Brython and Flask, respectively.
- Added interactive functionality that prompts user for input and updates the (Mongo) database accordingly.

Other Experience

Exhibit Technician | Pacific Science Center | Jan. 2018 – Jan. 2019

Doctoral Student Researcher | University of California, Santa Barbara | Jan. 2011 – May 2017

- Designed and constructed a custom microscopy system for nanoscale chemical interrogation of surfaces.
- Created software suite for instrument operation and automated data collection / analysis.
- Developed and published a methodology for scientific interpretation of novel experimental results.

Education

Certificate, Data Science — Galvanize Data Science Immersive | Seattle, WA | 2019

Certificate, Machine Learning — Instructor: Andrew Ng, Stanford University (via coursera.org) | 2017

Ph.D., Chemical Engineering — University of California, Santa Barbara | Santa Barbara, CA | 2017

B.S., Chemical Engineering — University of Kentucky | Lexington, KY | 2010