

# Julianne Zech

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## Education

**Georgetown University | *B.A. Computer Science and Mathematics, GPA: 3.89 / 4.00***

**May 2020**

- **Clare Boothe Luce Academic Scholar:** Earned 2019 - 2020 full tuition scholarship of \$55,794 for female STEM researchers
- **Sample Computer Science Courses:** Algorithms, Advanced Java Programming, Artificial Intelligence, Big Data Analytics with Spark, C++ Programming 1 and 2, Data Mining, Data Structures, Network Security
- **Sample Mathematics Courses:** Applied Statistics, Linear Algebra, Probability and Statistics, Time Series Analysis in R

## Experience

**Georgetown University Data-Centric Computing Lab, Washington, DC | *Research Assistant***

**January 2019 - Present**

- Implemented naïve bayes and logistic regression algorithms in Python to classify #MeToo tweets as experiential or non-experiential using text mining and natural language processing techniques such as lemmatization, dense feature extraction, and word embedding
- Deployed scalable data processing pipeline on Google Cloud Platform to run trained models on 10 million tweet test set
- Engineered software programs using PySpark to compute frequencies of occupations and universities mentioned in #MeToo tweets
- Analyzed differences between subset labeled as experience and subset labeled as non-experience by performing SQL queries in BigQuery, mapping experience tweet timestamps to #MeToo movement events, and creating visualizations with Tableau
- Submitted poster with preliminary results to IEEE's 2019 International Conference on Data Science and Advanced Analytics
- Building classifiers to detect personal experience tweets versus tweets about someone else's experience and writing a senior thesis to be submitted to computer science journals for publication in spring 2020

**Georgetown University Department of Computer Science | *Teaching Assistant, Data Structures***

**August 2019 – Present**

- Hold 5 weekly office hours and grade homework, projects, and exams for 60 students

**Greenwich Associates, Stamford, CT | *Data Analytics Intern***

**May 2018 – July 2018**

- Developed statistical graphs in QlikView using survey data from 3,000+ institutional investors evaluating their asset managers
- Produced 16 presentations used by consultants in annual meetings with asset management clients explaining industry trends, showcasing data models, and delivering customized business insights
- Debugged and tested 124-page web survey applications and cleaned data sets in Excel and R in preparation for further analysis

## Projects

**Independent Stock Price Machine Learning Model**

**March 2019 – Present**

- Implementing machine learning model in Python to forecast 1-month stock prices using lasso and ridge regularized linear regression, tree-based methods, and deep neural networks (motivated by interest in modeling high-dimensional financial data)
- Constructing ensemble classifier and structuring code to compare individual model performances after hyperparameter optimization
- Creating pipeline to reproduce analysis on new data and will publish methodology, visualizations, and results in Jupyter notebook
- Presenting finished project in the FinTech competition track of Hack GCL at CapitalOne on September 14, 2019

**Independent Data Science Projects**

**May – August 2019**

- Designed 6 ggplot visualizations and shiny applications on raw and transformed data from public sources to build familiarity with R packages and hone data manipulation and data interpretation skills

**Data Mining Course Projects**

**January – May 2019**

- Taught myself to code in Python and to manipulate data using numpy and pandas to complete class projects more effectively
- Developed entropy-based discretization, naïve bayes, neural network, and association rule mining algorithms from scratch
- Achieved 86% 5-fold cross-validation F1 score for supervised learning classifiers, outperforming simple baseline majority by 10%

## Leadership

- **GU Women Coders Campus Outreach Director:** Devise and deliver 6 coding lessons and workshops per semester to audiences of up to 130 students and collaborate with 12 board members to increase participation of women in technology on campus
- **Computer Science Student Committee Representative:** 1 of 3 majors in class elected by peers and faculty to recommend curriculum and student resources improvements to the Department Chair

## Skills

- **Languages:** C++, Java, Python (pandas, pytorch, nltk, numpy, scikit-learn, seaborn), R (dplyr, ggplot, shiny), Scala, SQL
- **Technologies:** BigQuery, Git, GCP (Google Cloud Platform), MySQL, Spark (MLlib, Spark SQL), Tableau, QlikView, Unix/Linux

## Awards

- **Georgetown Undergraduate Research and Opportunities Program Summer Fellow:** Won \$3,000 summer research fellowship and was 1 of 2 female applicants selected to receive \$2,000 in additional funding based on research potential
- **Georgetown Computer Science Department GHC Scholar:** 1 of 3 majors funded to attend 2019 Grace Hopper Celebration