

## ZIMENG LIU

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### EDUCATION

**University of Washington, Seattle, WA**

**Sep. 2016 – Dec. 2017**

- Master of Science in Computational Finance and Risk Management
- Main Coursework: Financial Data Access And Analysis with SQL, VBA and Excel; Financial Data Modeling And Analysis In R

**University of Virginia, Charlottesville, VA**

**Aug. 2012 – May 2016**

- B.A. in Statistics and Minor in Psychology
  - Main Coursework: Actuarial Statistics, Statistical Machine Learning, From Data to Knowledge, Model Real-World Phenomena, Applied Time Series, Econometrics, Ordinary Differential Equations, Coding in Matlab, Linear Algebra, Probability, Calculus III
  - Honors: Dean's List (Spring 2015; Fall 2014; Fall 2013; Spring 2013)
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### RESEARCH

**Jan. 2016 – May 2016, Supervised by Daniel Keenan, *Professor***

- Analyzed heart rate data which was simultaneously recorded by electrocardiograms from 48 mother-fetus pairs by applying cross correlation, granger causality, linear regression, time series analysis and p-value approaches; determined whether there is a communication between the fetus and the mother during specific intervals
- A comparative analysis of handwritten digit recognition by using the MNIST handwritten digit database which containing 28x28 grayscale pixel values for 70000 digits; used these grayscale values as features for the model and reduced the dimensionality of these features using principal component analysis (PCA) and linear discriminant analysis (LDA); compared the efficacy and accuracy of applying KNN, NB, RF and SVM classification methods to data
- Utilized machine learning algorithms that sift through the past data from a large number of series; used time series approaches to analyze the profit returns of 30 stocks in the Dow-Jones Industrial Index from 1980 – present; determined an appropriate way to classify the stock sector by testing the accuracies of classification models including Decision Tree, Naïve Bayes and Discriminant Analysis

**Aug. 2015 – Dec. 2015, Supervised by Thomas Edwin Hall, *Professor***

- This is an individual computing project centering on different methods used to estimate the total of some attribute of a population that is distributed across a spatial region. The goal is to compare several different methods—Masuyama's Method, Measure  $\pi$  Method and Repeated Masuyama Method—for estimating the total basal area of the 3396 trees in a forest, in order to compare their relative accuracy. For each method, I wrote code using Matlab to randomly select a sample and then calculate an estimate for the total basal area of all trees in the forest base on the sample.

**Aug.2014 – Dec.2014, Supervised by Caitlin Steiner, *Associate Professor***

- Participated in “Linear Regression Analysis for Boston Housing Dataset” project; analyzed dataset on suburban Boston real estate using linear modeling analyses; interpreted the most important factors for house pricing, such as size and location
- Participated in “Hypothesis Tests for Car Characteristics” project; compared 21 automobile makes with their various characteristics, such as price and MPG; made conclusions through various hypothesis tests, subject to statistical standards
- For both projects, I used R to measure big data with different analyzing methods. I worked as a leader in the team to schedule the project and got 99/100 as award for my effort.

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## WORK EXPERIENCE

**Shanghai Jinde Asset Management Ltd.**, Beijing, China

**July 2016 – Aug. 2016**

*Data Analyst Intern, Research Department*

- Collected financial big data from WIND database and used SQL to filter and clean data for analyzing profitability growth and potential return on investment (ROI); determined predictive trends of stock prices by using Granger Causality Test
- Developed regression models using Matlab to find specific correlations between future index and stock index; presented results to managers

**Albemarle County**, Charlottesville, VA

**Aug. 2015 – May 2016**

*Researcher, Finance Department*

- Helped analyze financial and transactional data to determine predictive trends, provide data for support of strategy development;
- Retrieved, organized and cleaned transactional big data from the government database using SQL; created monthly reimbursement report that was, on average, 25 pages each month

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## EXTRACURRICULAR ACTIVITIES

**Jan. 2016—May 2016, Teaching Assistant for UVA Department of Computer Science**

- Graded weekly homework or projects and answered programming questions for students

**Aug. 2015 – Dec. 2015, Lab Assistant for UVA Department of Statistics**

- Graded laboratory assignments each week; helped answer questions and provided help for students

**Aug. 2014 – Dec.2014, Grader for UVA Department of Mathematics**

- Graded the school students' math homework on time and find some common mistakes made by students; discussed with course's instructor to help students to improve math theory and ability

**July 2014 – Aug. 2014, Studied Abroad in University of Oxford, United Kingdom**

- Participated in the Summer Courses in Oxford University; learned international economics in the global view; knew more about British culture and broadened horizons through courses and social practice

**Apr. 2014, Participant of Japanese Speech Contest in Duke University**

- Instructed by Professor Mieko Kawai and participated in the Japanese Speaking Contest; wrote the speech "Myself in the Future", and won the Third Prize

**Nov. 2013 – May 2016, Leader of Japan Club**

- Organized various activities to help students better get to know Japanese culture

**Sep. 2013 – May 2016, Member of Madison House**

- Joined the Madison House, and voluntarily helped the disabled students with their studies

**Dec. 2012 – May 2016, Member of Smart Women Security**

- Held over 50 times of campus activities, and publicized financial knowledge to students

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## AWARDS

- 2015, Got Actuarial qualification certificate, Exam P, awarded by American Society of Actuaries
- 2014, Second Prize in Croquet Competition of the Oxford University in United Kingdom
- 2014, Third Prize in the Japanese Speech Contest held by Duke University

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## SKILLS AND INTERESTS

- Experienced with R, Matlab, SQL, Excel, Latex, SPSS, STATA, Java and VBA
- Interested in taking photography—like to exposed to advanced and professional photographic technologies; adept with Photoshop; keen on scuba diving and croquet