

# Chengjun Zhang

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## EDUCATION

**Bachelor of Science with Honors**, Economics (3.91)

**Bachelor of Science**, Applied and Computational Mathematical Sciences (3.88)

University of Washington, Seattle

*Sep 2014 - Jun 2018 Expected*

## RESEARCH INTERESTS

Industrial Organization, Decision Theory, Empirical Microeconomics, Econometrics with Machine Learning

## WORK IN PROGRESS

**“Forecasts in Times of Crises”**

with Theo S. Eicher (Corresponding Author, University of Washington), Charis Christofides (IMF), David J. Kuenzel (Wesleyan University), and Chris Papageorgiou (IMF)

**“Gender Wage Gap in the U.S. since 2003”** - Honors Thesis, Advisor: Elaina Rose

## RESEARCH EXPERIENCE

**Research Assistant** - Department of Economics, University of Washington, Seattle

*Jun 2017 - Present*

- Assess IMF’s prediction bias of macroeconomic indicators across 115 countries for 425 loans under the direction of Professor Theo S. Eicher
- Process IMF Monitoring of Fund Arrangements (MONA) database in Stata
- Prepare dataset for forecast error regression and Mincer-Zarnowitz regression

**Independent Research** - Department of Mathematics, University of Washington, Seattle

*Oct 2015 - Jan 2016*

- Practiced advanced real-analysis in deriving the Black and Scholes Pricing Model under the direction of Professor Jim Morrow
- Studied stock market and option pricing mechanism

**Research Assistant Internship** - Chinese Academy of Social Sciences (CASS), Beijing

*Jun 2015 - Aug 2015*

- Investigated stock market behavior of Chinese households under the direction of Professor Li Xuesong, Vice President of National Academy of Economic Strategy, CASS
- Processed the China Household Finance Survey database, applied Probit and Logit Model for prediction
- Found the significant correlation between stock market behavior with the house owner’s age, education level, gender and many other factors
- Concluded female house owners are less risk-averse compared to male house owners on average

## RELATED WORK EXPERIENCE

**Academic Student Employee** - Department of Economics, University of Washington, Seattle

*Jan 2017 - Jun 2017; Jan 2018 - Jun 2018*

- Graded exams, homework, and quizzes for International Trade (ECON 471) and International Macroeconomics (ECON 472)
- Proctored exams and proofread exam questions, exam solutions, and course syllabi

## **Internship - China Everbright Bank, Beijing**

*Aug 2015 - Sep 2015*

- Served as a lobby assistant, handled customers' inquiries
- Computed repayments of overdue loans according to the court judgments, and the varying interest rates and penalty rates of the People's Bank of China (central bank)

## **RESEARCH PROJECTS**

### **"Report of Using Machine Learning Methods in Predicting Cesarean Sections" - Jun 2017**

- Cleaned and analyzed a Mexico health dataset with over 9 million observations
- Performed 10-fold cross-validation and modeled using LASSO, logistic regression, linear and quadratic discriminant analysis (LDA, QDA), and decision tree in R
- Achieved almost 80 percent prediction rate for the need of planned cesarean sections

### **"Wage Differences across Genders, Races, and Education Levels" - Mar 2017**

- Analyzed wage differences using the Panel Study of Income Dynamics 2013 database
- Examined the significance of how different education levels affect wage
- Identified the potential existence of gender and racial discrimination in the labor market

### **"Identification and Analysis of Important Factors that Affect Official Development Assistance Received by Developing Countries" - Dec 2016**

- Tested the significance of explanatory variables in predicting Official Development Assistance (ODA)
- Validated strong correlation between ODA and refugees, health conditions and other factors

### **"The Effect of Risk on Decision Making of Stock Portfolio Investment" (Group Project) - Dec 2016**

- Established optimization problem using linear programming with budget constraint, portfolio diversity constraint, and risk tolerance constraint
- Optimized selection of portfolio stocks from S&P 500

### **"Evacuation dynamics and Pedestrians' Interactive Behavior Model" - Oct 2016**

- Constructed microscopic model of pedestrians' behavior with self-driven and inter-pedestrian forces
- Automated dynamic simulation of a simplified two-pedestrian model in MATLAB

### **"Multidimensional Scaling of the Species of National Parks" (Group Project) - Oct 2016**

- Conducted multidimensional scaling model (MDS) by creating an indicator of commonality, "ecological distance," of 56 national parks based on biological species in R
- Produced results that precipitation and sunshine hours are main determinants of the variety of species

## **SKILLS**

**Programming** Proficient: Java, MATLAB, R, Stata

Introductory: C++, Python, SQL, Tableau

**Academic** Modeling, statistical analysis, applied microeconomics, econometrics, machine learning

## **COURSE HIGHLIGHTS**

### **ECON 500 Microeconomics Analysis I - Ph.D. level, Autumn 2017**

- Duality and comparative statics analysis, consumer and firm behavior, general equilibrium, and welfare economics

### **ECON 484 Econometrics and Data Science - Spring 2017**

- Structural modeling, non-linear and logistic regression, LASSO, and non-traditional topics: regression, classification trees, bagging, boosting, random forests, neural network, PCA, SVM, and clustering