

## 1. Name (first and last)

Text Response

Yipin Lu

Statistic

Value

Total Responses

1

## 2. Email

Text Response

yl886@georgetown.edu

Statistic

Value

Total Responses

1

## 3. Contact Phone

Text Response

2024699359

Statistic

Value

Total Responses

1

#### 4. In Fall 2018 you will consider yourself to be a:

#	Answer	Bar	Response	%
1	VT Freshmen Undergraduate Student		0	0%
2	VT Sophomore Undergraduate Student		0	0%
3	VT Junior Undergraduate Student		0	0%
4	VT Senior Undergraduate Student		0	0%
5	Between Undergrad and Graduate school		0	0%
6	Graduate school		1	100%
	Total		1	

Statistic	Value
Min Value	6
Max Value	6
Mean	6.00
Variance	0.00
Standard Deviation	0.00
Total Responses	1

#### 5. What degree(s) and major(s) are you pursuing along with institution?

Text Response
Master of Science in Analytics

Statistic	Value
Total Responses	1

6. List any Minors you are pursuing.

Text Response

Statistic

Total Responses

Value

0

7. List any honors and/or awards received:

Text Response

Patents & Publications • First Inventor of Patent [Patent Pending] (Resource Distribution Method and Device of Terminal Concurrence Service, and Base Station. Patent Application No. CN201410609931.1). • First Inventor of Patent [Patent Pending] (Neighbor Relation Determining Method and Apparatus. Patent Application No. CN20141006913.2). • Lu Y. "4G Era—Exploration of the Value of Data." Mobile Communications, vol. 37, no. 355, 2013, p.50. • Lu Y. "An Introduction to TD-LTE CSFB Mechanism and Investigation of Optimization Method (Special Issue)." Mobile Communications, vol. 37, no. 351, 2013, p. 30. • Lu Y. and Zhou H. "GSM\_TD-SCDMA Reselection Time Delay Analysis." Telecommunications Technology, vol. 3, 2013, pp. 62-65. Honors • First Prize of General Manager Innovation Contest China Mobile Hangzhou Branch 2013/2015/2016 • Outstanding Individual Provincial Communication Backup for Emergency Drilling against Typhoon and Landslide: Zhejiang Communications Administration 2015 • Excellent Employee: China Mobile Hangzhou Branch 2014

Statistic

Total Responses

Value

1

8. Currently we have 1 program accepting applications which includes:

#	Answer		Total Responses
15	Data Science for the Public Good	0	0
	Total	0	-

Statistic	Data Science for the Public Good
Min Value	-
Max Value	-
Mean	0.00
Variance	0.00
Standard Deviation	0.00
Total Responses	-

9. Essay (up to 500 words): “What do you want to get out of this experience?”

Text Response

According to my study in Data Science at Georgetown University, I find that Data Science is ideal for interdisciplinary researches: applying to studies concerning public good (e.g. Pan 2017; Amrit et al. 2017) is an exemplar. Therefore, my goals are 1) to bridge gap the academia and the application, and the bridging may help to improve social services; 2) to build my own interdisciplinary expertise in studying social issues by using algorithms from machine learning, deep learning, etc. Given for interdisciplinary researches, the chosen data and the algorithms decide the outcomes of a study. For example, one of the previous projects Modeling Response Time for Structure Fires ([https://www.bi.vt.edu/sdal/content/generic\\_page/arlington-county-fire-department-response-times.pdf](https://www.bi.vt.edu/sdal/content/generic_page/arlington-county-fire-department-response-times.pdf)) successfully manifests by employing linear model how fire incident and traffic data can promote the efficiency of allocating emergency resources. Inspired by this and other previous projects, I consider that there are more possibilities in interdisciplinary researches that had not yet been experimented, and I am eager to implementing them. For example, how to combine Internet of Things (IoT) techniques with data science to solve traffic or environmental problems. Reference Amrit, Chintan, et al. "Identifying child abuse through text mining and machine learning." Expert Systems with Applications 88(2017). Pan, I., et al. "Machine Learning for Social Services: A Study of Prenatal Case Management in Illinois." American Journal of Public Health 107.6(2017):938.

Statistic

Total Responses

Value

1

10. Essay (up to 500 words): "Please describe any previous research experience and/or work experience you may have."

Text Response

I worked as a mobile network engineer at China Mobile (CMCC) from 2011-2017. My work is to optimize the mobile-network quality in one-third of Hangzhou. Since the Chinese Telecommunication industry is undergoing significant transitions, 2G, 3G and 4G users coexist. Thus, to balance different distributions of statistics of 2G, 3G and 4G was my main target. Besides, I worked with other fellows from CMCC and other companies in many important projects: for example, I joined a project "Experimental testing of Circuit Switched Fallback (CSFB) in Hangzhou" and we succeeded in constructing the first CSFB experimental network in Mainland China. This success was the cornerstone for the wide range deployment of CSFB which technically facilitates iPhone users. Another important project was "Hangzhou LTE High-Quality Network" which targets at optimizing LTE network performance central areas of Hangzhou. Members of this project managed to build a never-offline 5Mbps download model based on modeling analyses on extremely large amounts of data. Some of the projects I joined concerned public good and social governance. For instance, in 2014, my team and I developed a model to monitor human flows in scenic areas of Hangzhou city. Data for this governmental project were collected from base stations and GIS information. This project helps to avoid human stampedes in crowded areas. Then, in 2016 I worked with other engineers from Alibaba, Huawei, and Saic Motor to schematize the world's largest and most advanced LTE-Vehicle experimental network. This project fulfilled the interactions between vehicles and their surrounding substances, such as other vehicles and traffic lights. This technological breakthrough is anticipated to significantly decrease traffic accident rates and to solve traffic congestion. Additionally, I developed two new patents [Pat. Pend.]: "A Method/Device of Determining the Relationship between Neighbor Cells" and "A Method/Device/Base Station of Resource Allocation of Terminal Concurrent Services". These two patents can apply to optimize radio resource configuration and improve the call connection rate and internet speed of mobile phones. I also published two research articles: "GSM\_TD-SCDMA Reselection Time Delay Analysis" on Telecommunications Technology and "An Introduction to TD-LTE CSFB Mechanism and Investigation of Optimization Method" on Mobile Communications. The former focuses on the reselection time from 2G to 3G, and I proposed a feasible solution which could cutdown 10% of the lapse, while the latter studies the mechanism of CSFB and its optimization solutions.

Statistic

Total Responses

Value

1

### 11. Essay (up to 500 words): "Please describe your background (courses taken, research projects, etc.) in statistics and mathematics."

Text Response	
Undergraduate study (2007-2011): My major is Information and Communication Engineering. Moderate knowledge in mathematics and statistics would satisfy the requirements for researches in this field. Throughout my undergraduate study, I took relevant courses such as Linear Algebra, Mathematical Analysis, Probability Theory, Mathematical Statistics and stochastic process, etc. I have already developed the competence to build mathematical models for specific occasions. Graduate study (2017-present): I major Data Science at Georgetown University. In the Fall semester 2017, I took two relevant courses: Introduction to Data Analytics (IDA) and Probabilistic Modeling and Statistical Computing (PMSOC). IDA focused on applying python on data-scrapping from website and API, on data cleaning, on clustering analyses to trace the homogenous data, on classification analyses and data visualization by using machine learning algorithms. My classmate and I finalized this course by a project targeting at the relationship between yelp reviews and local weather. PMSOC is about Bayes theories, permutation test, hypothesis test and their applications in R. In this Spring semester, I am taking course of Massive Data Fundamentals (MDF), Statistical Learning (SL) and Structures and Algorithms for Analytics (SAA). MDF concentrates on Hadoop, Spark and Amazon Web Services. SL works on machine learning algorithms and artificial neural network. Then SAA aims at promoting the efficiency of code writing. In addition, I also audit Natural Linguistic Processing.	
Statistic	Value
Total Responses	1

### 12. Essay (up to 500 words): "Please describe your background (courses taken, research projects, etc.) in social and behavioral sciences."

Text Response	
My second major in my undergraduate study is Business Administration (Entrepreneurship). During this period, I got familiar with basic principles of Organization Behaviors, Accounting, Microeconomics, Macroeconomics, Marketing, Management, Human Resource Management, Financial Management, International Business and Project Management. After finishing my undergraduate study, I enrolled in the Chartered Financial Analyst (CFA) Program and have passed Level 3 CFA exam. Some of the subjects in CFA correlate to the field of behavioral finance. For example, the effect of loss aversion makes human beings tend to hold loser investments to avoid realizing losses. Besides, I also develop quantitative financial analysis skills, such as financial statement analysis and cooperate finance. These skills are very useful to assist social science researches. Although I have not conducted any specific study or project on social and behavioral science in the strictest sense, my previous experience and knowledge are sufficient to accomplish studies or projects of social and behavioral science.	
Statistic	Value
Total Responses	1

### 13. Essay (up to 500 words): "Please describe your background in programming."

Text Response	
I have developed basic coding knowledge of C language since my undergraduate study. Then I develop solid analytic skills in Python and R: I am competent in conducting data analyses with machine learning algorithms, e.g. Random Forest and Naive Bayes. I also applied the NLTK package to count word frequency and conduct sentiment analysis. Moreover, I have learned how to conduct statistical analysis with R, e.g. the permutation test, estimation, hypothesis test and regression.	
Statistic	Value
Total Responses	1

### 14. Essay (up to 500 words): "Please provide information about other significant courses you have taken within your field of study."

Text Response	
Statistic	Value
Total Responses	0

### 15. Please list the name and contact information for 2 references (teachers, mentors, or employers) that we will contact for a letter of reference/brief survey. Please make sure you list the correct email and they know we will be contacting them soon (within the next week). Only 2 references will be contacted; do not list more than 2.

Text Response	
Dr. Ami M. Gates, Teaching Professor of Data Analytics and Computer Science, Georgetown University, Email: amg309@georgetown.edu. Mr. ZHOU Haijiao, Associate Director, China Mobile Hangzhou Branch, Email: zhouhaij@zj.chinamobile.com.	
Statistic	Value
Total Responses	1