Initial Report

Last Modified: 01/31/2018

1. Name (first and last)

Text Response
Jaeo Han

Statistic	Value
Total Responses	1

2. Email

Text Response
jae6732@vt.edu

Statistic	Value
Total Responses	1

3. Contact Phone

Text Response
5405056732

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
PhD and Statistics

Statistic	Value
Total Responses	1

6. List any Minors you are pursuing.

Text Response
Mathematics (B.S)

Statistic	Value
Total Responses	1

7. List any honors and/or awards received:

Text Response
WHITFIELD COBB award for outstanding scholarship, Honors Diploma: Honor Scholars, Mu Sigma Rho- National Statistics Honor Society, Clyde Kramer scholarship recipient, Norrine Bailey Spencer Strong Start Award scholarship, Award for Excellent Calculus (Top student in Korean high-school)

Statistic	Value
Total Responses	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
My purpose in undertaking Data Science for Public Good (DSPG) summer program is to explore many varieties of the research field in preparation for a career as a researcher. I would like to learn not only technical skills and knowledge, but also valuable, yet non-technical skills that cannot be taught in the classroom—skills such as working in a team, communication skills, and presentation skills. I wish to meet new people on different backgrounds and see a new educational perspective to broaden my scope of knowledge. It will expose me to different methodologies and approaches that I may have never discovered in the classroom. I believe that the program will provide me with ample opportunities to further my education and training in order to put me in a successful career path.

Statistic	Value
Total Responses	1

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

Text Response
During my graduate collaborative research with Michigan State University, Oregon State University, and Washington State University, I described student’s communication patterns and compared different community detection algorithms in igraph. It was fascinating to compute student centralities (e.g., degree, closeness, betweenness, and eigenvalue) and understand how each of the community detection algorithms worked differently. I successfully presented my research in the 33rd Quality Productivity Research Conference at the University of Connecticut in the Summer of 2017. I am currently finalizing two manuscripts: one is to use social network analysis to describe communication patterns in a classroom, and the other is to develop a novel survey instrument measuring student engagement. These two manuscripts will be submitted during the Spring of 2018. After the presentation, I spent most of my time understanding the statistical inference of network data, along with the effect of the presence of missing nodes on analytical intractability and high computational complexity. As a part of the Fralin Translational Obesity Research Center (TORC) Scholar program at Virginia Tech, I worked as a full-time research assistant (40 hour a week) with the interdisciplinary Virginia Tech Fralin TORC team and FitNet, a fitness app developer company. My team used a mixed effects model to show how a bio-tracking number system, developed by FitNet, can capture the different types and levels of exercise programs based on heart-rate, acceleration, and perceived exertion. I successfully presented our work at the 2015 Virginia Tech Summer Undergraduate Research Symposium and the 2016 Virginia Tech Undergraduate Research and Creative Scholarship Conference. Even though my commitment towards pursuing a career as a researcher began during my research experiences, it deepened during my work experience as a statistical consult at Virginia Tech’s Laboratory for the Interdisciplinary Statistical Analysis. My responsibility at work was to provide support for interdisciplinary research projects and review research proposals. I provided statistical advice and analysis to Virginia Tech researchers through which I was also able to feel their passion for research. I enjoyed helping others use statistics to solve problems—solidifying my career goal as a researcher in the field of statistics.

Statistic	Value
Total Responses	1

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

Text Response
I have always been strong in my academic performance. I earned my bachelor degree with two majors in Statistics and Mathematics. My strong work ethic allowed me to have a high GPA (e.g., 3.98). Also, I received the Whitfield Cobb Award for outstanding scholarship from the Department of Statistics and honor diploma from the Virginia Tech Honors College. I am also a member of Mu Sigma Rho, National Statistics Honor Society. My favorite group project during my undergraduate study is to investigate and create visualizations of the Yelp dataset. My team used the ggmap package for R to visualize the longitudinal and latitudinal variables for each business on google map. We found businesses with high review counts tend to cluster together, and these groups typically occur near the center of a city. It was a great opportunity to create some very powerful visualizations which can provide the audience with a new understanding that numbers alone cannot. Another course project is about the high-dimensional variable selection. I conducted four variable selections (e.g., Ridge, LASSO, Elastic Net, and Principal Components regression) when the number of predictor variables in a set exceeds the number of observations. It was a wonderful opportunity to compare the selected variable sets from these methods and to validate the best model prediction accuracy using k-fold cross-validation.

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
I began developing an interest in Social and Behavioral Sciences during my graduate collaborative research. My responsibility is to use social network analysis to describe student communication patterns. To make meaningful interpretations, I spent a lot of times understanding student behaviors in a classroom through literature review in education and the behavioral sciences. Even though I do not have a strong background in Social and Behavioral Sciences, all of my learning experiences, along with my academic background have prepared me for my future in the Data Science for Public Good (DSPG) summer program. I wish to meet new people whose background is in Social and Behavioral Science during the program.

Statistic	Value
Total Responses	1

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

Text Response
My main programming language is R for my research. I have used R to manipulate and analyze data since 2014. In addition, I have experience with many software packages and programming languages useful for mathematics and statistics. These include SAS, MATLAB, C++, and Python. During my graduate study, I took advanced statistical computing courses to improve my computing skills. I was able to learn how to leverage modern desktop computing (multiple cores), cluster computing (multiple nodes) and distributed computing (Hadoop/Amazon EC2), and the coming wave of exascale computing (GPU/TPU/Xeon Phi). I also have experience with GitHub for sharing data and code.

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
During my graduate study, I have taken data analytics courses to develop my analytical skills. I was able to learn many data mining algorithms (e.g., tree-based methdos, Bayesian methods, use of support vectors, k-means, hierarchical and self-organizating map thethods).

Statistic	Value
Total Responses	1

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.Shyam Ranganathan (shyam81@vt.edu) and Dr. Inyoung Kim (inyoungk@vt.edu)

Statistic	Value
Total Responses	1