Dear Dr. Caetano and Dr. Alexander,

I am excited to submit my application to be a part of your research team. My academic studies in global health with minors in statistics and economics have allowed me to develop a proficiency in R. I have had multiple courses that required me to use R and other research opportunities in epidemiology/biostatistics where I used R. I know that the skills that I have gleaned in my previous experiences and throughout my academic career will allow me to excel in this position.

This past summer, I joined Dr. Witiw at St. Michael's Hospital to work on his project in clinical epidemiology. Using large amounts of data from the Trauma Quality Improvement Program (TQIP), we extracted cohorts of spinal cord patients to predict how surgery affects different outcomes. I have been using R for the majority of the data cleaning and analysis. We are performing a propensity score analysis then determining an odds ratio from a logistic model. Lastly, we are using GitHub for version control.

Additionally, I contributed to a project in spatial epidemiology. At the School of Public Health at U of T under the supervision of Dr. Ge, I used GIS software implemented in both Python and R to analyze the spatial distribution of green areas in Ontario, Canada. I completed advanced spatial log risk ratios and Mann-Whitney clustering techniques to determine the distribution over space and time. Both of these research experiences in epidemiology have developed my skills in R. I am able to apply the knowledge that I have learned in my applied statistics courses (such as STA303 and STA305) to these research positions. I know that I can apply the same mentality to this position.

Lastly, I'd like to highlight my experience this summer participating in the U of T Datafest through the ISSC. My team and I examined COVID-19 data in reference to low income unemployment rate. We modeled the low income job loss rate for each US state based on different county level covariates, including cumulative COVID-19 cases, and thus controlled for the random effect of each county. Through this competition, I learned how to create a shiny dashboard from watching the short seminar through the ISSC and lots of googling. I was able to create a dashboard to display our results for my team (https://rjaffe123.shinyapps.io/shiny_map_attempt/) and creating these dashboards has become a side hobby (https://rjaffe123.shinyapps.io/tidytuesdays/). In the end, my team and I were

awarded 2nd place overall, out of 42 teams. I really enjoyed working in this small team and was able to further expand on my skills in R.

My previous experiences have displayed my enjoyment of coding in R. I am excited to continue to expand on this passion through this position. Thank you for taking the time to read this letter and review my resume. I look forward to hearing from you and discussing this position further.

Sincerely,
Rachael Jaffe

Rachael Jaffe

rachael.jaffe@mail.utoronto.ca | rjaffe123.github.io | rjaffe123 | rachael-jaffe

Education

University of Toronto *Toronto, ON*

BSc (Hons) in Global Health *2016-2020*

- Minors in Statistics and Economics
- Varsity water polo, captain 2018-2020

Research Experience

St. Michael's Hospital *Toronto, ON*

Research Assistant *May 2020 - present*

- Currently completing research in clinical epidemiology examining different cohorts of patients with spinal chord injuries.
- Performing data analysis with R, SAS.
- Using statistical analysis techniques such as non parametric modeling and propensity score analysis

Amsterdam Medical Center *Amsterdam, NL*

Research Intern *Sept 2020 - present*

- Performing research in social epidemology examining the 'driveability' index.
- Relevant work performed in ArcGIS, python, R.

Dalla Lana School of Public Health *Toronto, ON*

Research Assistant *Sept 2019 - August 2020*

- Contributed to a project in spatial epidemiology examining greenness accessibility and distribution within Ontario.
- Performing data analysis with Python, R, ArcGIS, SPSS

Department of Statisical Sciences and Medical Imaging *Toronto, ON*

Research Opportunity Student *Sept 2018 - April 2019*

- Performed research on sample size and cross validation for a convolutional neural network in order to explain and model accuracy.
- Modified the architechture of the CNN in python that predicted damage of dental plates from x-ray images

Other Relevant Experience

Department of Statistical Sciences *Toronto, ON*

Peer Mentor *Sept 2018 - present*

- Mentored first year students who intend to study statistics to help them succeed in a new academic environment.
- Organized at least 1 social event per semester and connected students with resources to aid them in their transition to Toronto.
- Helped the new team of 20 mentors on their transition to an online platform.

iMerciv *Toronto, ON*

Business Analyst *Sept 2019 - Jan 2020*

- Created an interview script to interview over 200 people to determine a minimum viable market for their developing navigational app.
- Developed marketing strategies for Instagram, Twitter, Facebook.

Technical experience

Programming languages

R

- Data cleaning with Tidyverse
- ShinyApps / Dashboard

Python

- Basic knowledge of API's to download information from a website

GIS

- ArcGIS and QGIS
- Knowledge of standalone scripts in R and python for geospatial statistics and modelling

STATA

- High proficiency implementing various econometric methodology

Awards

Frank Pindar Female Athlete of the Year *2019-2020*

- Awarded to the top achieving female athlete at the University of Toronto

NCWP Most Valuable Goalie *2017, 2018, 2019*

- Awarded to the top goalie in the Ontario University water polo league

Selected to compete with Team Canada at FISU in Naples, Italy *July 2019*

- 4th overall

2nd Overall, U of T Datafest *June 2020*

- Website: https://datafestuoft.github.io/ & Project: https://rjaffe123.shinyapps.io/shiny_map_attempt/