

# Katya Kelly

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## Education

### Macalester College

B.A. in Applied Mathematics & Statistics, GPA 3.92

Minors in Geography, Computer Science

Saint Paul, MN

Aug. 2015–Dec. 2018

### Coursework

Advanced Cartography & Geovisualization • Health GIS • Regional Geography of the US and Canada • World Regional Geography • Survival Analysis • Bayesian Statistics • Mathematical Statistics • Probability • Statistical Computing and Machine Learning • Internet Computing • Software Design & Development • Algorithm Design & Analysis • Object-Oriented Programming and Data Structures

## Skills

R, Python, JavaScript, HTML/CSS, Java, ArcGIS, QGIS, Leaflet, Inkscape, Microsoft Office, LaTeX, Google Docs

## Experience

### Macalester College - Department of Geography

GIS Lab Assistant

Saint Paul, MN

Sept. 2018–Dec. 2018

- Hold lab hours twice per week to help GIS students with assignments and ArcGIS troubleshooting

### Voting Rights Data Institute - Tufts, Harvard, MIT

Undergraduate Summer Fellow

Cambridge, MA

June 2018–July 2018

- Helped create an open-source shapefile of voting precincts in Ohio
- Helped build a Shiny app to visualize a Markov chain algorithm for redistricting
- Worked on smaller weekly projects related to gerrymandering and redistricting reform

### Macalester College - Department of Math, Statistics, & Computer Science

Teaching Assistant for Introduction to Statistical Modeling

Saint Paul, MN

Jan. 2017–Dec. 2017

- Held weekly office hours to answer student questions about assignments, course material, and coding in RStudio
- Attended three one-hour class periods per week to assist with in-class activities and lab assignments
- Graded quizzes, homework assignments, and labs for over 60 students

## Projects

### Whip It Like a (Wo)Man: Survival Analysis of Minority Contestants in MasterChef Junior

Survival Analysis

Saint Paul, MN

Sept. 2018–Current

- Used survival analysis methods in R to model survival of contestants by race and gender
- Co-writing a paper on discrimination in the cooking industry and how our analysis contributes to the larger conversation

### Digitizing, Districting, and Data: Creating an Open-Source Precinct Shapefile for Ohio

VRDI/Capstone

Saint Paul, MN

June 2018–Current

- Developing an R package for approximating precinct boundaries
- Digitized images of voting precincts using QGIS
- Helped write an algorithm in R to classify unclassified voting blocks
- Joined election data to classified voting blocks

### Checking the Media: A Cluster Analysis of Wealth and Suicide Rates in the United States

Health GIS

Saint Paul, MN

Jan. 2018–Apr. 2018

- Acquired and cleaned raw .csv files and shapefiles
- Performed statistical analyses such as LISA tests, Moran's I analysis, and difference in means tests
- Produced demonstrative choropleth maps of suicide and wealth patterns for all ages and for residents aged 15-24

## **Predicting the Big One: Using Bayesian Modeling Techniques to Predict Earthquakes**

*Bayesian Statistics*

**Saint Paul, MN**

*Oct. 2017–Dec. 2017*

- Used R to import and wrangle raw data
- Performed Markov chain Monte Carlo sampling and Bayesian regression to develop prediction models

## **Barriers to Bicycling in Minneapolis, Minnesota**

*Introduction to Geographic Information Systems*

**Saint Paul, MN**

*Nov. 2017–Dec. 2017*

- Analyzed raw data using geoprocessing tools in ArcGIS
- Produced 4 exploratory maps and a final site suitability map for new bicycling education centers
- Co-wrote a paper on the nuances of bicycling as a social barrier to certain demographics living within the city

## **Honors and Awards**

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### **Best Video Presentation**

*Electronic Undergraduate Statistics Research Conference*

**Saint Paul, MN**

*2 Nov. 2018*

### **Ezra J. Camp Endowed Prize in Mathematics & Statistics**

*Macalester College*

**Saint Paul, MN**

*18 Apr. 2018*

### **DeWitt Wallace Distinguished Scholar**

*Macalester College*

**Saint Paul, MN**

*Sept. 2017*

## **Presentations**

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### **Digitizing, Districting, and Data: Creating an Open-Source Precinct Shapefile for Ohio**

*Electronic Undergraduate Statistics Research Conference*

**Saint Paul, MN**

*2 Nov. 2018*