# Katya Kelly

Seattle, WA

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## Education

**Macalester College**                                                                                      **Saint Paul, MN**
*B.A. in Applied Mathematics & Statistics, GPA 3.93*                                       *Aug. 2015–Dec. 2018*
*Minors in Geography, Computer Science*

### Coursework

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

## Skills

### Languages and Software

R, Python, HTML/CSS, JavaScript, Java, ArcGIS, QGIS, Mapbox, Leaflet, Git, Inkscape, InDesign, LaTeX, Microsoft Office

### Methods

Data visualization, data wrangling, cluster computing, regression, survival analysis, R package development, Markov chain Monte Carlo, cartography, layout design, web mapping, network analysis, spatial autocorrelation, site suitability analysis, map digitization, web design

## Experience

**Institute for Health Metrics and Evaluation**                                                 **Seattle, WA**
*Data Analyst - US Counties/Kaiser team*                                                  *Feb. 2019–Current*

- Work with data sources, data systems, and data providers related to county-level health measurement in the US
- Update deaths, population, and covariate data series used by the US counties team
- Develop processes for managing data, formatting data, and vetting analysis results
- Calculate summary measures such as life expectancy, cause-specific mortality rates, and years of life lost (YLLs)

**Macalester College - Department of Geography**                                          **Saint Paul, MN**
*GIS Lab Assistant*                                                                            *Sept. 2018–Dec.2018*

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

**Voting Rights Data Institute - Tufts, Harvard, MIT**                                  **Cambridge, MA**
*Undergraduate Summer Fellow*                                                              *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**     **Saint Paul, MN**
*Teaching Assistant for Introduction to Statistical Modeling*                          *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

**Digitizing, Districting, and Data: Creating an Open-Source Precinct Shapefile for Ohio**     **Saint Paul, MN**
*VRDI & Senior Capstone*                                                                       *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 census blocks without a precinct classification
- Joined election data to classified census blocks

**Whip It Like a (Wo)Man: Survival Analysis of Minority Contestants in *MasterChef Junior***      **Saint Paul, MN**
*Survival Analysis*      *Sept. 2018–Dec. 2018*

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

**Checking the Media: A Cluster Analysis of Wealth and Suicide Rates in the United States**      **Saint Paul, MN**
*Health GIS*      *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**      **Saint Paul, MN**
*Bayesian Statistics*      *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**      **Saint Paul, MN**
*Introduction to Geographic Information Systems*      *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

## R Packages

Jolly, K. and **Kelly, K.** (2019). approxprecincts: Approximate Voting Precinct Boundaries Using Voterfile Addresses. R package version 0.0.0.9000. https://github.com/ykelly/approxprecincts

## Honors and Awards

**Best Video Presentation**      **Saint Paul, MN**
*Electronic Undergraduate Statistics Research Conference*      *2 Nov. 2018*

**Ezra J. Camp Endowed Prize in Mathematics & Statistics**      **Saint Paul, MN**
*Macalester College*      *18 Apr. 2018*

**DeWitt Wallace Distinguished Scholar**      **Saint Paul, MN**
*Macalester College*      *Sept. 2017*

## Presentations

**Digitizing, Districting, and Data: Creating an Open-Source Precinct Shapefile for Ohio**      **Saint Paul, MN**
*Electronic Undergraduate Statistics Research Conference*      *2 Nov. 2018*

**GIS as a Civic Engagement Tool: The Geography of Voting Rights**      **Saint Paul, MN**
*Macalester College Geography Dept. Seminar*      *18 Oct. 2018*

**Checking the Media: A Cluster Analysis of Wealth and Suicide Rates in the United States**      **River Falls, WI**
*Midwest Undergraduate Geography Symposium - Public Poster Session*      *21 Apr. 2018*