

Katya Kelly

Seattle, WA

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Education

Macalester College

B.A. in Applied Mathematics & Statistics, GPA 3.93

Minors in Geography, Computer Science

Saint Paul, MN

Aug. 2015–Dec. 2018

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

Data Analyst - US Counties/Kaiser team

Seattle, WA

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

GIS Lab Assistant

Saint Paul, MN

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

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

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

VRDI & Senior 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 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
Survival Analysis

Saint Paul, MN
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
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

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

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

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

Electronic Undergraduate Statistics Research Conference

Saint Paul, MN
2 Nov. 2018

GIS as a Civic Engagement Tool: The Geography of Voting Rights

Macalester College Geography Dept. Seminar

Saint Paul, MN
18 Oct. 2018

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

Midwest Undergraduate Geography Symposium - Public Poster Session

River Falls, WI
21 Apr. 2018