

# Katie Jolly

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## CONTACT INFORMATION

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(703)-881-1282

<https://github.com/katiejolly>  
<http://katiejolly.io>

## EDUCATION

**Macalester College, St. Paul, MN** Spring 2019  
Majors: Applied Mathematics/Statistics (with honors) and Geography GPA 3.65

Selected courses: Statistical Research Methods in Geography; Statistical Computing and Machine Learning; Metro Analysis; Health GIS; Probability; Core Concepts in Computer Science; Survival Analysis; 2D Design; Bayesian Statistics; Correlated Data; Cultural Atlas Production

## TECHNICAL SKILLS

R/RStudio, ArcGIS, QGIS, GitHub, Excel, Python, SQL, HTML5/CSS, LaTeX, Tableau, Django, Jekyll, R Shiny, Adobe Illustrator & InDesign, Leaflet, Inkscape

## RESEARCH INTERESTS

Spatial data science, cartography and information design, spatial network analysis, technical communication, public policy evaluation, statistical computing, R package development, Bayesian spatial modeling, civic engagement projects, neighborhood development, active transportation & public transit

## PROFESSIONAL EXPERIENCE

### **Metropolitan Council of the Twin Cities**

Data Science Intern, Regional Policy and Research May - August 2019

- Used Public Use Microdata Survey data to create a series of visualizations about the intersection of race and disability in the Twin Cities for use by the Council for transportation equity planning
- Implemented an algorithm to aggregate census block groups according to contextual and compositional variables in order to create larger geographies with lower standard errors that are still contextually meaningful to local planners
- Used Bayesian hierarchical modeling and ecological inference to study regional park visitation patterns using location-based services data

### **Macalester College Math, Statistics, and Computer Science Department**

Teaching Assistant, MATH 253: Machine Learning and Statistical Computing Jan. - May 2019

- Attend class to assist with in-class activities and lectures
- Hold four office hours per week to answer homework and general questions
- Serve as a mentor for students interested in data science and statistics beyond the class
- Grade in-class activities and homeworks promptly
- Meet regularly with professor to talk about my work

### **Voting Rights Data Institute, MIT/Tufts/Harvard, Cambridge, MA**

Undergraduate Summer Fellow June - August 2018

- Worked on weekly projects related to math and gerrymandering
- Organized a team to build an open source shapefile of 2016 voting precincts in Ohio using digitization of PDF maps and computational methods to approximate boundaries in counties without maps
- Presented updates weekly in an informal session with other fellows and mentors

- Pair-programmed an interactive Shiny app showing the output from the MCMC algorithm that creates millions of potential districting plans by mapping district flips of individual precincts

### **Macalester College Math, Statistics, and Computer Science Department**

Teaching Assistant, COMP 112: Introduction to Data Science Aug. 2017 - Dec. 2018

- Attended every class to assist with in-class activities and lectures
- Held at least four office hours per week to answer homework and general questions
- Served as a mentor for students in the first year seminar section
- Graded in-class activities promptly

### **BlueLabs, Washington, DC**

Data Science Intern June - Aug. 2017

- Worked on the data science team doing projects related to political analytics
- Created maps for use in professional presentations
- Wrote Python scripts to scrape web data

### **Planned Parenthood, St. Paul, MN**

Statistical Consultant Jan. - May 2017

- Built logistic models to predict no-shows
- Applied network analysis and spatial autocorrelation to determine the optimal clinic to open for late hours
- Communicated findings to Planned Parenthood staff in formal presentation to inform changes in scheduling procedures

### **HONORS AND AWARDS**

2019 Undergraduate Statistics Research Project Honorable Mention  
 2019 Daniel Kaplan Award in Statistics and Data Science  
 2019 David A. Lanegran Award in Geography  
 2018-2019 Macalester Student Educator of the Year Award  
 2019 AAG Marble-Boyle Undergraduate Achievement Award in Geographic Science  
 2018 eUSR Conference Best Video Presentation  
 2018 MN GIS/LIS Student Scholar and First Place in Presentation Competition  
 2017-2018 Macalester Student Educator of the Year Award

### **COMMUNITY ENGAGEMENT**

#### **Saint Paul Public Libraries**

Panelist at the Open Data Party series July 2019

#### **RLadies- Twin Cities**

Co-organizer Dec. 2018 - present

#### **Math, Statistics, and Computer Science Department**

Student Representative Sept. 2018 - May 2019

#### **Women in Math, Statistics, and Computer Science Committee**

Committee Member Dec. 2017 - May 2019

### **R PACKAGES**

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

**Jolly, K.** (2018). advicegiveR: R Wrapper for the Advice Slip API. R package version 1.0.0. <https://github.com/katiejolly/advicegiveR>

## PRESENTATIONS

### **Spatial Data Science in R**

rNorth Conference, Aug. 2019

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

eUSR Conference, Nov. 2018

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

Macalester Geography Department Seminar, Oct. 2018

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

MN GIS/LIS Conference, October 4, 2018

### **Political donations from STEM community: Learning dplyr!**

RLadies- Twin Cities, December 9, 2017

### **Writing narratives with data: An introduction to ggplot2!**

RLadies- Twin Cities, November 18, 2017

### **Proud leaders: How women in tech talk about themselves on Twitter**

eUSR Conference, Nov. 2017

### **Proud leaders: How women in tech talk about themselves on Twitter**

Hack and Tell DC, August 15, 2017