

# Raven McKnight

STATISTICIAN & DATA SCIENTIST

Minneapolis, MN

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## Education

### Macalester College

Sept 2016 - May 2020

BA IN APPLIED MATHEMATICS AND STATISTICS (HONORS), SUMMA CUM LAUDE

Saint Paul, MN

- Minors in Geography (GIS) and Creative Writing
- Awarded The Kaplan Award for Achievement in Data Science

TWIN CITIES BUS RIDERSHIP: A SPATIAL BAYESIAN ANALYSIS

- Statistics honors thesis conducted in collaboration with Metro Transit

## Work and Teaching Experience

### Data Science Intern - Research and Analytics

June 2019 - present

METRO TRANSIT

Minneapolis, MN

- Designed, implemented, and maintain a spatial Bayesian direct demand model of bus ridership
- Identified novel predictors of ridership in the region and introduced a new demographic survey question to the agency
- Conduct analysis supporting agency-wide equity goals and initiatives
- Design and build R Shiny apps for internal use
- Ad hoc reporting and data support for business units

### Teaching Assistant

Jan 2018 - May 2020

MACALESTER COLLEGE MATHEMATICS, STATISTICS, AND COMPUTER SCIENCE DEPARTMENT

Saint Paul, MN

- Served as a teaching assistant for Linear Algebra (Spring 2018, Fall 2018), Applied Multivariable Calculus 1 (Spring 2019, Spring 2020), Correlated Data (Fall 2019), Causal Inference (Spring 2020), and Introduction to Statistical Modeling (Spring 2020)
- Directed weekly office hours and attended classes to assist with activities
- Effectively communicated complex mathematical concepts and programming skills to a wide audience with varying academic backgrounds
- Graded homework and communicated with professors regarding class progress and adjustments
- Shifted to online office hours in Spring 2020 to support students in introductory classes through the transition to online learning

### Office Assistant

Aug 2018 - Mar 2020

MACALESTER COLLEGE MATHEMATICS, STATISTICS, AND COMPUTER SCIENCE DEPARTMENT

Saint Paul, MN

- Assisted with department-wide planning and daily secretarial tasks
- Helped facilitate events such as weekly coffee breaks and annual block parties

### Instructor

Fall 2017

COW TIPPING PRESS

Saint Paul, MN

- Taught inclusive creative writing workshops for adults with developmental disabilities
- Developed engaging lessons for students with diverse backgrounds and abilities
- Published student work and hosted a successful public reading

## Selected Projects

### Data Science Researcher

Fall 2019

NATIONAL GALLERY OF ART

Remote

- Analyzed the Gallery's collection for gender diversity in acquisition practices
- Presented findings at the Gallery as the only undergraduate team
- Developed prototype for an internal R Shiny dashboard to monitor collections

### Saint Paul 3K Initiative

Fall 2019

SAINT PAUL CITY COUNCIL

Saint Paul, MN

- Class project to support Saint Paul City Council member efforts to provide affordable, accessible childcare to all 3- and 4-year old children in Saint Paul through data visualization and GIS
- Conducted primary data collection to develop database of existing childcare centers

### Wannabe Geographer's Guide to Census Geography

Fall 2019

MACALESTER COLLEGE

Saint Paul, MN

- Combined my interests in geography, design, and education into a zine about Census geography

## Volunteering and Service

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### Tenure Track Hiring Committee Member

Fall 2018 and Fall 2019

MACALESTER COLLEGE MATHEMATICS, STATISTICS, AND COMPUTER SCIENCE DEPARTMENT

Saint Paul, MN

- Selected by department to be an equal voting member on the Committee Member to hire tenure track professors
- Conducted interviews and evaluated job applications
- Coordinated student events during candidate campus visits and administered student surveys
- Served on three successful Committee Members, resulting three successful tenure track hires in Mathematics, Applied Mathematics, and Statistics

### Class Agent

Sep 2019 - Mar 2020

MACALESTER COLLEGE

Saint Paul, MN

- Nominated to serve as an agent and encourage students and alum to donate to Macalester in support of financial aid
- Conducted fundraising outreach and education for peers on campus

### Committee Member

May 2017 - May 2018

MACALESTER WOMEN IN MATHEMATICS, STATISTICS, AND COMPUTER SCIENCE

Saint Paul, MN

- Encouraged gender diversity in Math, Statistics, and Computer Science through networking and professional development
- Held events such as female faculty panels and weekly study breaks

### Macalester Mentor

May 2016 - May 2017

MACALESTER COLLEGE

Saint Paul, MN

- Mentored low-income, first-generation high school students through the college application process
- Led tours of Macalester's campus and spoke on panels about financial aid and college life

## Talks and Presentations

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- 2021 **Analyzing Bus Ridership with a Spatial Direct Demand Model:** Poster session presenting benefits of spatial modeling to transportation professionals
- 2020 **Twin Cities Bus Ridership: A Spatial Bayesian Analysis:** Honors thesis defense
- 2019 **Intent in Acquisition:** Presented R Shiny app and findings to Gallery curators and staff

## Honors and Awards

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- 2020 **Kaplan Award for Achievement in Data Science:** Macalester College
- 2019 **DataFest Best in Show:** Macalester College

## Publications

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- 2020 **Meandering Minneapolis: A Cultural Atlas:**  
<https://www.flipsnack.com/macalester/meanderingminneapolis/full-view.html>

## Technical Skills

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**Analytics and Programming:** R/RShiny, Python, SQL, Jupyter, ArcGIS, QGIS, Stan, JAGS

**Cloud and Distributed Computing:** Docker, Azure, MapReduce, AWS

**Machine Learning:** Tensorflow, scikit-learn, Spark ML

**Other:** Version control/Github, LaTeX, Adobe Creative Suite, Django, Hugo, bookdown/blogdown