

# Catherine King

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## RESEARCH INTERESTS

Misinformation, social media analytics, computational social science, network science, election studies

## EDUCATION

### Carnegie Mellon University

Expected May 2025

PhD in Societal Computing, Software and Societal Systems Department

Proposal: "[Effective and Practical Strategies for Combatting Misinformation](#)"

Advisor: Dr. Kathleen M. Carley

### The College of William & Mary

M.S. in Computational Operations Research

May 2016

Capstone project: "Optimizing voter wait times" [simulation](#) and [paper](#)

Advisor: Dr. Lawrence M. Leemis

### The College of William & Mary

B.S. in Mathematics, with a minor in Computer Science

*Summa cum laude*, Honors in Mathematics

May 2014

Thesis: "[Nonlinear models of zooplankton communities](#)"

Advisors: Dr. Sarah Day and Dr. Drew LaMar

## PUBLICATIONS

- Catherine King, Samantha C. Phillips, and Kathleen M. Carley. "Registered Report: A path forward on online misinformation mitigation based on current user behavior." *Under Review at Scientific Reports*.
- J.D. Moffitt, Catherine King, and Kathleen M. Carley. "[Connecting the Domains: An Investigation of Internet Domains found in COVID-19 Conspiracy Tweets](#)" *Computational and Mathematical Organization Theory* (2023)
- Catherine King and Kathleen M. Carley. "[Gender dynamics on Twitter during the 2020 Democratic Presidential Primary](#)," *Social Network Mining and Analysis* (2023) [[BLOG POST](#)]
- J.D. Moffitt, Catherine King, and Kathleen M. Carley. "[Hunting Conspiracy Theories during the COVID-19 Pandemic](#)." *Social Media + Society* (2021). [[BLOG POST](#)]
- Catherine King, Christine Sowa Lepird, and Kathleen M. Carley. "[Project OMEN: Designing a Training Game to Fight Misinformation on Social Media](#)." *Tech Report*. Carnegie Mellon University, Institute for Software Research (2021).
- Daniele Bellutta, Catherine King, and Kathleen M. Carley. "[Deceptive accusations and concealed identities as misinformation campaign strategies](#)." *Computational and Mathematical Organization Theory* (2021).
- **(BEST PAPER WINNER)** Catherine King, Daniele Bellutta, and Kathleen M. Carley. "[Lying about lying on social media: a case study of the 2019 Canadian elections](#)," *Proceedings of the 2020 SBP-BRiMS Conference* (2020)
- Stephanie Glasser and Catherine King. "[System dynamics for estimating sUAS operations](#)." *Proceedings of the 2019 Winter Simulation Conference* (2019).
- Catherine King and Lawrence M. Leemis. "[Data analysis and simulation: Optimizing voter wait times](#)." *Proceedings of the 2016 IEEE Systems and Information Engineering Design Symposium* (2016).
- Catherine King, Katherine Shipman, Sarah Day, and M. Drew LaMar. "[Dimension and mortality in linear stage class models of \*Acartia tonsa\*](#)." *Proceedings of the Sixth Symposium on Beer* (2013).

## **POSTER PRESENTATIONS**

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- Catherine King and Kathleen M. Carley, "Leveraging Media Literacy Training to Promote Social Corrections", IDeaS and SBP-BRiMS conferences, September 2024
- Catherine King, Peter Carragher, and Kathleen M. Carley, "Citation Network Analysis of Misinformation Interventions", SBP-BRiMS conference, September 2023

## **HONORS AND AWARDS**

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- **Knight Fellow (Fall 2020-present):** A fellowship to perform transdisciplinary research projects and present at the annual IDeaS conference. Project is the one under review at *Scientific Reports*.
- **Best Paper Award (Oct 2020):** "[\*Lying about lying on social media: a case study of the 2019 Canadian elections\*](#)", SBP-BRiMS 2020 Conference. Determined by the editors, based on paper and presentation.
- **"Fan Favorite" Award (May 2016):** modeling and simulation competition at the MODSIM World 2016 conference, "fan favorite" as voted by conference attendees and sponsors. Additionally, a runner-up for the judge's award (project simulation found at <https://faster-voting.wm.edu/>.)
- **3<sup>rd</sup> place, WINFORMS Student Excellence Award (May 2016):** original research in Operations Research, judged based on a short paper and presentation of my master's capstone project (the faster voting project)
- **Luther T. Connor Prize (May 2014):** graduating senior with "enthusiasm for mathematics", "respect for others", May 2014. Determined by the Mathematics department.
- **1<sup>st</sup> place in Undergraduate Research Competition (Oct 2013):** International Symposium on Biomathematics and Ecology Education and Research conference. Judged from a presentation and a research manuscript

## **RESEARCH EXPERIENCE**

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<b>Carnegie Mellon University - Research Assistant</b>	<i>August 2019 - present</i>
<ul style="list-style-type: none"><li>• Designed a survey to gather user behavior when seeing misinformation on social media and user opinions on various misinformation countermeasures</li><li>• Analyzed differential treatment of female US presidential candidates on social media, monitored levels of hate speech and gendered hate speech directed at all major Democratic candidates in 2020</li><li>• Identified COVID-19 conspiracy theory tweets to better understand who spreads conspiracy theories and how they are effectively spreading them</li><li>• Designed a game meant to train analysts on how to detect and fight misinformation on social media</li></ul>	
<b>The College of William and Mary - Research Assistant</b>	<i>January 2012 – August 2014</i>
<ul style="list-style-type: none"><li>• Modeled zooplankton/phytoplankton dynamics in the Chesapeake Bay with Profs. Day and LaMar</li><li>• Turned project into senior honors thesis and gave presentations at several math conferences</li></ul>	

## **TEACHING EXPERIENCE**

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<b>Carnegie Mellon University - Teaching Assistant</b>	<i>August 2019 - present</i>
<ul style="list-style-type: none"><li>• Dynamic Network Analysis (PhD Level), 1 semester</li><li>• CASOS Summer Institute, five summer sessions<ul style="list-style-type: none"><li>◦ "Twitter Hashtag Community Analysis: A Case Study on the Canadian Elections" (2020)</li><li>◦ "Project OMEN: Case Study" (2021)</li><li>◦ "One and Two-Mode Metrics, Folding" (2022)</li><li>◦ "Network Comparison and Prediction" (2021, 2022, 2023, 2024)</li></ul></li></ul>	
<b>The College of William &amp; Mary - Teaching Assistant</b>	<i>August 2013 - May 2016</i>
<ul style="list-style-type: none"><li>• Calculus II, 4 semesters</li><li>• Introduction to Mathematical Biology, 1 semester</li></ul>	
<b>The College of William &amp; Mary - Grader</b>	
<ul style="list-style-type: none"><li>• Elementary Probability and Statistics, 1 semester</li><li>• Ordinary Differential Equations, 1 semester</li><li>• Mathematical Statistics, 1 semester</li></ul>	

## WORK EXPERIENCE

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### MITRE - Data Scientist

August 2018 – January 2020

- Contributed programming and analysis work to spectrum consumption modeling in Java
- Supported Army manpower modeling efforts by building linear regression models and economic analyses
- Helped build a system dynamics model that predicts future adoption rates of UAVs in the United States

### Genworth - IT Analyst / Modeling Analyst

July 2016 – July 2018

- Supported and developed actuarial models in MATLAB, SAS, and R
- Developed a simulation of a long-term care projections model in MATLAB

## ACADEMIC AND COMMUNITY SERVICE

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### Peer Reviewer

- **Journals:** New Media & Society, Social Media + Society, Behavioral Sciences of Terrorism and Political Aggression
- **Conferences:** IDeAS Conference

### Mentorship (Summer 2024)

- Managed three high school interns in a directed reading program
- Trained interns to categorize different types of misinformation interventions in a scoping literature review project

### CMU Graduate Student Association (GSA) Representative (Fall 2023-present)

- Current student representative of Societal Computing PhD students
- Plan, organize, and budget for social events for students in the program
- Attend meetings with departmental leadership, advocate for students

### CMU GSA, External Affairs Committee Member (Fall 2020-present)

- Helped over 20 CMU students sign up to be poll workers during the 2020 poll worker shortage
- Met with congressional staff to ensure relevant graduate student issues (mental health, sexual harassment, increased NSF funding) would remain in the final version of the 2022 “[CHIPS and Science Act](#).”
- Registered students to vote in advance of the 2022 elections

### Election Judge:

- Election judge or poll worker in every Pittsburgh election since 2020

## SKILLS

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### Software/Programming Languages:

- Proficient: R, Python, ORA, MATLAB, LaTeX
- Familiar: Java, SQL, SAS

**Languages:** English (native), Italian (heritage)