Catherine King

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RESEARCH INTERESTS

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

EDUCATION

Carnegie Mellon University *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 *May 2016*
M.S. in Computational Operations Research
Capstone project: "Optimizing voter wait times" simulation and paper
Advisor: Dr. Lawrence M. Leemis

The College of William & Mary *May 2014*
B.S. in Mathematics, with a minor in Computer Science
Summa cum laude, Honors in Mathematics
Thesis: "Nonlinear models of zooplankton communities"
Advisors: Dr. Sarah Day and Dr. Drew LaMar

PUBLICATIONS

- Catherine King, Samantha C. Phillips, and Kathleen M. Carley. "**Public support for misinformation interventions depends on perceived fairness, effectiveness, and intrusiveness**". *Under review at Social Media + Society* (2025).
- Catherine King, Peter Carragher, and Kathleen M. Carley, "Mapping the Scientific Literature on Misinformation Interventions: A Bibliometric Review". *ICWSM Workshop Proceedings* (2025).
- Catherine King, Samantha C. Phillips, and Kathleen M. Carley. "A path forward on online misinformation mitigation based on current user behavior." *Scientific Reports* (2025) [BLOG POST]
- 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

- 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

- **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/.)
- **3rd 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.
- **1st 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

Carnegie Mellon University – Research Assistant *August 2019 - present*

- Designed a survey to gather user behavior when seeing misinformation on social media and user opinions on various misinformation countermeasures
- 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
- Identified COVID-19 conspiracy theory tweets to better understand who spreads conspiracy theories and how they are effectively spreading them
- Designed a game meant to train analysts on how to detect and fight misinformation on social media

The College of William and Mary – Research Assistant *January 2012 – August 2014*

- Modeled zooplankton/phytoplankton dynamics in the Chesapeake Bay with Profs. Day and LaMar
- Turned project into senior honors thesis and gave presentations at several math conferences

TEACHING EXPERIENCE

Carnegie Mellon University – Teaching Assistant *August 2019 - present*

- Dynamic Network Analysis (PhD Level), 1 semester
- CASOS Summer Institute, five summer sessions
    - "Twitter Hashtag Community Analysis: A Case Study on the Canadian Elections" (2020)
    - "Project OMEN: Case Study" (2021)
    - "One and Two-Mode Metrics, Folding" (2022)
    - "Network Comparison and Prediction" (2021, 2022, 2023, 2024)

The College of William & Mary – Teaching Assistant *August 2013 - May 2016*

- MATH 112 – Calculus II – 4 semesters
- MATH 345/MSCI 648 – Introduction to Mathematical Biology – 1 semester

The College of William & Mary - Grader

- MATH 106 – Elementary Probability and Statistics – 1 semester
- MATH 345 – Ordinary Differential Equations – 1 semester
- MATH 452/552 – Mathematical Statistics – 1 semester

WORK EXPERIENCE

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

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

Software/Programming Languages:

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

Languages: English (native), Italian (heritage)