Keith Burghardt
Curriculum Vitae

Contact Information:

University of North Carolina at Charlotte
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General Information:

Education:

Ph.D.	Physics, University of Maryland, College Park, MD. June 2016. Thesis advisors: Profs. Michelle Girvan and William Rand
B.S.	Physics, University of Maryland, College Park, MD. June 2012. *Magna Cum Laude with High Honors in Physics*

Prizes, Awards, and Scholarships:

2026:	Gold Reviewer, ICML
2025:	Amazon Buyer Risk Prevention Award for Leadership Principle "Learn and Be Curious"
2022:	ASONAM 2022 Runner-Up Best Paper Award Most Outstanding Pilot Project Poster, RCC-RD-MCD USC Center for AI in Society Symposium (ShowCAIS) Best Poster Award
2021:	ISI Meritorious Service Award
2018:	International Conference on Computational Social Science Scholarship
2016:	ISI Director's Intern Award
2015:	Conference on Complex Systems Starred Paper Award

Memberships in Professional Societies:

2018-Present: Member, Association for Computing Machinery
2018-2024: Member, Association for the Advancement of Artificial Intelligence

Research Interest:

I analyze extremism, fraud, and scams via AI tools and data analysis, especially analyzing social media, and bank transactions. I specifically analyze why people join extremist groups, and how they can be deradicalized. I also explore fraud and scam methods, as well as why people are susceptible to scams.

Research Experience:

2026-: Assistant Professor, University of North Carolina at Charlotte

My research focuses on understanding the lifecycle of online extremist groups and detecting fraud and scams through social media analysis and collaborations with banks, such as Wells Fargo, and e-commerce sites, such as Amazon.com. This has

led to novel methods to extract fraud signals, as well as quantify scam methods on social media.

2025: Amazon Applied Scientist

My research at Amazon.com focused on detecting fraud through innovative AI tools, including leading research on feature discovery with AI agents. This and other work have directly led to millions of dollars in customer savings from fraud at Amazon via my development of new automation tools.

2018-2025: Computer Scientist, USC Information Sciences Institute, Marina del Rey, CA

My research focused on detecting online extremist groups and analyzing their tactics, including extracting information operations from social media and disinformation tactics meant to drive online and offline behavior. I detected extremist groups on social media, such as X, Telegram, or Reddit, via quantifying their rhetoric at scale. I then developed coordinated social media account detection tools to find large sets of inauthentic accounts that these and other nefarious groups use for propaganda and disinformation. Finally, I determined changes in the behavior of new extremist group recruits via causal models and extracted ways to deradicalize these users based on complimentary observational data. My work is informing policymakers, such as the California Commission on the State of Hate, about ways to reduce online-driven radicalization and reduce the harms of social media.

2016-2018: Postdoctoral Researcher, University of California Davis, Davis, CA

I developed numerical simulation tools to simulate and predict cascades in models of social networks (information cascades) as well as electric grids (power outages). I also utilized statistical mechanics tools, including differential equations and combinatorics, to find change points and other features of these cascades.

2016-2016: Summer Intern, USC Information Sciences Institute, Marina del Rey, CA

I won an ISI Director's Intern Award developing tools to analyze how social influence and website formats shape decision-making. I specifically created a website which we used to test how social influence, and the position of items affects how experiment participants choose items, which I then compared against social media platform observational data. This was used to create two papers for which I was first author.

2013-2016: Research Assistant, University of Maryland – College Park, College Park, MD

I developed new tools to simulate and analyze opinion dynamics, including how people vote in country-wide multi-party elections, or even small juries. I matched data with these simulations to extract key features of the models, including how quickly opinions change, and compared these simulations to the theory I developed.

Publications:

Peer-Reviewed Articles:

1. Hickey, D., Fessler, D. M. T., Lerman, K., **Burghardt, K.** (2024). X Under Musk's Leadership: More Hate and No Reduction in Inauthentic Activity. *PLoS ONE* 20.2 (2025): e0313293.
   Impact factor: 2.9
2. Qian, J., Du, Y., Liang, F., Yi, J., Wang, N., Tu, W., Huang, S., Pei, T., Ma, T., **Burghardt, K.**, Lerman, K. (2024). Evaluating resilience of urban lifelines against flooding in China using social media data. *IJDRR*, 106: 104453
   Impact factor: 4.2
3. **Burghardt, K.,** Uhl J. H., Lerman, K., & Leyk, S. (2024). Analyzing urban scaling laws in the United States over 115 years. *Environ. Plan. B-Urban*, 23998083241240099.
   Impact factor: 2.6
4. Schmitz, M., Muric, G., Hickey, D., & **Burghardt, K.** (2024). Do users adopt extremist beliefs from exposure to hate subreddits? *SNAM*, *14*(1), 1-12.
   Impact factor: 2.3
5. Ruprechter, T., **Burghardt, K.,** & Helic, D. (2023). Poor attention: The wealth and regional gaps in event attention and coverage on Wikipedia. *PLoS ONE*, *18*(11), e0289325.
   Impact factor: 2.9
6. Uhl, J. H., Royé, D., **Burghardt, K.**, Aldrey Vázquez, J. A., Borobio Sanchiz, M., & Leyk, S. (2023). HISDAC-ES: Historical Settlement Data Compilation for Spain (1900–2020). *ESSD*, 1-51.
   Impact factor: 11.2
7. Pi, H., **Burghardt**, **K.**, Percus, A. G., & Lerman, K. (2023). Clique densification in networks. *Phys. Rev. E*, 107(4): L042301.
   Impact factor: 2.2
8. He, Y., **Burghardt**, **K.**, & Lerman, K. (2022). Leveraging Changepoint Detection to Discover Natural Experiments in Data. *EPJ Data Science*, 11(49).
   Impact factor: 3.0
9. Abram, M., **Burghardt**, **K.**, Steeg, G.V., Galstyan, A., & Dingreville, R. (2022). Inferring topological transitions in pattern-forming processes with self-supervised learning. *NPJ Comput. Mater.,* 8(205).
   Impact factor: 9.2
10. **Burghardt**, **K.**, Uhl, J. H., Lerman, K., & Leyk, S. (2022). Road network evolution in the urban and rural United States since 1900. *CEUS*, 95: 101803.
    Impact factor: 7.1
11. **Burghardt**, **K.**, Guo, S., & Lerman, K. (2021). Unequal impact and spatial aggregation distort COVID-19 growth rates. *Philos. Trans. Royal Soc. A*, 380:20210122.
    Impact factor: 4.3
12. **Burghardt**, **K.**, He, Z., Percus, A. G., & K. Lerman. (2021). The emergence of heterogeneous scaling in research institutions. *Commun. Phys.*, 4(189).
    Impact factor: 5.4
13. Rao, A., Morstatter, F., Hu, M., Chen, E., **Burghardt**, **K.**, Ferrara, E., & Lerman, K. (2021). Political Partisanship and Anti-Science Attitudes in Online Discussions about Covid-19. *J. Med. Internet. Res.*, 23(6): e26692.
    Impact factor: 7.4

14. Ngo, S.C., Percus, A. G., **Burghardt**, **K.**, & Lerman, K. (2020). The Transsortative Structure of Networks. *Proc. R. Soc. A.*, 476: 20190772.
    Impact factor: 2.9
15. **Burghardt, K.** & Maoz, Z. (2020). Dyadic imbalance in networks. *J. Complex Netw.*, 8(1): cnaa001.
    Impact factor: 2.2
16. **Burghardt**, **K.**, Rand, W., & Girvan, M. (2019). Inferring models of opinion dynamics from aggregated jury data *PLoS ONE*, 14(7): e0218312.
    Impact factor: 2.9
17. Turalska, M., **Burghardt**, **K.**, Rohden, M., Swami, A., & D'Souza, R. M. (2019). Cascading failures in scale-free interdependent networks. *Phys. Rev. E*, 99(3): 032308.
    Impact factor: 2.2
18. **Burghardt, K.** & Maoz, Z. (2018). Partial Shocks on Cooperative Multiplex Networks with Varying Degrees of Noise. *Sci. Rep.*, 8(1): 13619.
    Impact factor: 3.8
19. Lin, Y., **Burghardt**, **K.**, Rohden, M., Noel, P.-A., & D'Souza, R. M. (2018). Self-organization of dragon-king failures. *Phys. Rev. E*, 98(2): 022127.
    Impact factor: 2.2
20. **Burghardt**, **K.**, Alsina, E., Lerman, K., Rand, W., & Girvan, M. (2017). Myopia of Crowds: A Study of Community Evaluation on Stack Exchange. *PLoS ONE*, 12(3): e0173610.
    Impact factor: 2.9
21. **Burghardt**, **K.**, Verzijl, C., Huang, J., Ingram, M., Song, B., & Hasne, M. (2016). Testing Modeling Assumptions in the West Africa Ebola Outbreak. *Sci. Rep.*, 6: 34598 EP.
    Impact factor: 3.8
22. **Burghardt**, **K.**, Rand, W., & Girvan, M. (2016). Competing Opinions and Stubbornness: Connecting Models to Data. *Phys. Rev. E*, 93(3): 032305.
    Impact factor: 2.2

Peer-reviewed Conference and Workshop Proceedings:

1. Hickey, D., Fessler, D.M.T., Matheus Schmitz, M., Smaldino, P., Lerman, K., Muric, G., **Burghardt, K.** (2026). Assessing How Hate, Counterspeech, and Toxicity Affect Hate Group Newcomers. In: *ICWSM 20*(1), 1007–1026.
   Acceptance rate: 25%
2. Guo, S., **Burghardt, K.**, Pantè,V., Lerman, K. (2026) Somer: Multi-view user representation learning for social media. In: *ICWSM 20*(1), 989–1006.
   Acceptance rate: 25%
3. **Burghardt, K.**, Fessler, D. M. T., Tang, C., Pisor, A., Lerman, K. (2026). Posts of Peril: Detecting Information About Hazards in Text. In: *ICWSM 20*(1), 370–390.
   Acceptance rate: 25%
4. Hickey, D., Fessler, D. M., Schmitz, M., Lerman, K., **Burghardt, K.** (2025, June). The peripatetic hater: predicting movement among hate subreddits. In: *ICWSM*, *19*(1), 786–803.
   Acceptance rate: 25%
5. Bartley, N., **Burghardt, K.**, Lerman, K., (2024). Measuring the Echo-chamber Phenomenon Through Exposure Bias. In: *ASONAM*, 317–336.
   Acceptance rate: --

6. Bartley, N., **Burghardt, K.**, Lerman, K., (2024). Bias Reduction in Social Networks through Agent-Based Simulations. In: *BIAS*, 64–77.
   Acceptance rate: 35%
7. **Burghardt, K.**, Chen, K., Lerman, K. (2024). Large Language Models Reveal Information Operation Goals, Tactics, and Narrative Frames. In: *ICWSM Workshop CySoc 2024*, 1–15.
   Acceptance rate: 31%
8. Bartley, N., **Burghardt, K.**, Lerman, K. (2024). Auditing Exposure Bias on Social Media for a Healthier Online Discourse. In: *ICWSM Workshop CySoc 2024*, 1–17.
   Acceptance rate: 31%
9. Pinto, G., **Burghardt, K.**, Lerman, K., Ferrara, E. (2024). Fighting for Democracy: The Attempted Coup in Peru through the lens of TikTok. In: *ICWSM Workshop DWMV 2024*, 1-7.
   Acceptance rate: 77%
10. Luceri, L., Pantè, V., **Burghardt, K**., Ferrara, E. (2024). Unmasking the web of deceit: Uncovering coordinated activity to expose information operations on Twitter. In: *TheWebConf 2024*, 2530–2541.
    Acceptance rate: 20.2%
11. **Burghardt**, **K.**, Rao, A., Guo, S., He, Z., Chochlakis, G., Sabyasachee, B., Rojecki, A., Narayanan, S., & Lerman, K. (2024). Socio-Linguistic Characteristics of Coordinated Inauthentic Accounts. In: *ICWSM 2024*, *18*(1), 164-176.
    Acceptance rate: 25%
12. Chen, K., He, Z., **Burghardt, K.**, Zhang, J., Lerman, K. IsamasRed: A Public Dataset Tracking Reddit Discussions on Israel-Hamas Conflict. In: *ICWSM 2024*, *18*(1), 1900-1912.
    Acceptance rate: 46%
13. Hickey, D., Schmitz, M., Fessler, D., Smaldino, P. E., Muric, G., & **Burghardt, K.** (2023). Auditing Elon Musk's Impact on Hate Speech and Bots. In: *ICWSM 2023*, *17*(1), 1133-1137.
    Acceptance rate: 46%
14. Bartley, N., **Burghardt, K.**, & Lerman, K. (2024). Evaluating Content Exposure Bias in Social Networks. In: *ASONAM*. 379-383. doi: 10.1145/3625007.3627724.
    Acceptance rate: 37%
15. Chochlakis, G., Mahajan, G., Baruah, S., **Burghardt**, **K.**, Lerman, K., & Narayanan, S. (2023). Leveraging Label Correlations in a Multi-Label Setting: A Case Study in Emotion. In: *ICASSP 2023*, 1-5, doi: 10.1109/ICASSP49357.2023.10096864.
    Acceptance rate: 45%
16. Chochlakis, G., Mahajan, G., Baruah, S., **Burghardt**, **K.**, Lerman, K., & Narayanan, S. (2023). Using Emotion Embeddings to Transfer Knowledge Between Emotions, Languages, and Annotation Formats. In: *ICASSP 2023*, 1-5, doi: 10.1109/ICASSP49357.2023.10095597.
    Acceptance rate: 45%
17. Schmitz, M., Murić, G., & **Burghardt, K.** (2023). Detecting Anti-Vaccine Users on Twitter. In: *ICWSM 2023*, *17*(1), 787-795.
    Acceptance rate: 25%
18. Schmitz, M., Murić, G., & **Burghardt, K.** (2022). Quantifying How Hateful Communities Radicalize Online Users. In: *ASONAM 2022*, 139-146. IEEE.
    Acceptance rate: 21%

19. He, Y., **Burghardt**, **K.**, Guo S., & Lerman, K. (2022). Learning Fairer Interventions. In: *AIES 2022*, 317–323.
    Acceptance rate: 38%
20. Guo, S., **Burghardt**, **K.**, Rao A., & Lerman, K. (2022). Emotion Regulation and Dynamics of Moral Concerns During the Early COVID-19 Pandemic. In*: SocialSens Workshop*, doi:10.36190/2022.28.
    Acceptance rate: --
21. He, Y., Rao, A., **Burghardt**, **K.**, & Lerman, K. (2021). Identifying Shifts in Collective Attention to Topics on Social Media. In: *SBP-BRiMS 2021*, 12720. Springer, Cham.
    Acceptance rate: 82%
22. **Burghardt**, **K.**, Tavabi, N., Ferrara, E., Narayanan, S., & Lerman, K. (2021). Having a Bad Day? Detecting the Impact of Atypical Events Using Wearable Sensors. In: *SBP-BRiMS 2021*, Vol. 12720. Springer, Cham.
    Acceptance rate: 82%
23. He, Y., Tran, C., Jiang, J., **Burghardt**, **K.**, Ferrara, E., Zheleva, E., & Lerman, K. (2021). Heterogeneous Effects of Software Patches in a Multiplayer Online Battle Arena Game. In: *FDG '21.* Association for Computing Machinery, New York, NY, USA, Article 11, 1–9.
    Acceptance rate: 38%
24. Santos, T., **Burghardt**, **K.**, Lerman, K., & Helic, D. (2021). Limiting Tags Fosters Efficiency. In: *WebSci'21*, 46-55.
    Acceptance rate: 26%
25. **Burghardt**, **K.**, Hogg, T., D'Souza, R., Lerman, K., & Posfai, M. (2020). Origins of Algorithmic Instabilities in Crowdsourced Ranking. In: *CSCW 2020*, 1-20.
    Acceptance rate: 26%
26. Santos, T., **Burghardt**, **K.**, Lerman, K., & Helic, D. (2020). Can Badges Foster a More Welcoming Culture on Q&A Boards? In: *ICWSM 2020*, *14*(1), 969–973.
    Acceptance rate: 25%
27. He, Y., **Burghardt, K.**, & Lerman, K. (2020). A Geometric Solution to Fair Representations In: *AIES 2020*, 279-285.
    Acceptance rate: 38%
28. **Burghardt, K.**, Hogg, T., & Lerman, K. (2018). Quantifying the Impact of Cognitive Biases in Question-Answering Systems. In: *ICWSM 2018*, *12*(1) 568-571.
    Acceptance rate: 25%
29. Ferrara, E., Alipourfard, N., & **Burghardt, K.**, Gopal, C., Lerman, K. (2017). Dynamics of Content Quality in Collaborative Knowledge Production. In: *ICWSM 2017*, *11*(1), 520-523.
    Acceptance rate: 31%
30. Agarwal, T., **Burghardt**, **K.**, & Lerman, K. (2017). On Quitting: Performance and Practice in Online Game Play. In: *ICWSM 2017*, *11*(1), 452-455.
    Acceptance rate: 31%

Book Chapters and Other One-Time Publications:

1. Alipourfard, N., **Burghardt, K.**, & Lerman, K. (2021). Disaggregation via Gaussian Regression for Robust Analysis of Heterogeneous Data. In: *Handbook on Computational Social Science Vol 2*. Eds: Uwe Engel, Anabel Quan-Haase, Xun Liu, Lars Lyberg.
2. **Burghardt, K.** (2017). 2017 Conference on Complex Systems Report, *SIAM DSWeb* [Online] *https://bit.ly/2VSSTOG*.

Internal Report:

Burghardt, K., & Girvan, M. (2013). Clustering Faculty in the Biosciences. *University of Maryland, College Park Internal Report*.

Teaching experience:

Spring 2026: **Lecturer DTSC 8120 "Fundamentals of Machine Learning"**
I lectured on machine learning basics, an introduction to neural networks, and applying foundation models to machine learning. I introduced tabular models for regression as well as classification, then expanded to the utility deep learning, such as of pre-training, grokking, and overparameterization of. I then discussed how LLM feature engineering, data augmentation, and LLM-as-judge can improve machine learning models, as well as their disadvantages (lack of diverse outputs, i.e., "artificial hivemind", hallucinations, etc.).

Summer 2024: **Lecturer USC Integrated Media Systems Center "Introduction to Artificial Intelligence"**
I taught AI from simple logistic regression to deep feed-forward neural networks. I also taught how AI is used to classify text and images, segment images, and generate new text or images via foundation models.

Spring 2024: **Lecturer DSCI 531 "Fairness in Artificial Intelligence"**
I taught machine learning ethics, including how AI tools make mistakes that harm protected groups. I then discuss metrics of fairness, and tools that can improve AI fairness in text and image classification by improving training data or the model itself. I finish by discussing improving fairness in foundation models.

Spring 2023: **Co-lecturer DSCI 531 "Fairness in Artificial Intelligence"**
I lectured for half of the classes and taught machine learning ethics, including how AI tools make mistakes that harm protected groups. While my co-lecturer focused on metrics and data science, I discussed fairness and ethics in neural networks.

Spring 2022: **Co-lecturer DSCI 550 "Data Science at Scale"**
I lectured for half of the classes and discussed tools to extract and organize large datasets at scale, including using Apache Spark and Hadoop.

Spring 2021: **Co-lecturer DSCI 552 "Machine Learning for Data Science"**
I lectured for half of the classes and discussed machine learning basics, including models, such as random forests or support vector machines, as well as best practices when training models. For example, I introduced kernels used in support vector machines, and discussed how these models work best for small datasets compared to more modern AI models.

Fall 2019: **Co-lecturer INF 553 "Foundations and Applications of Data Mining"**
I lectured half of the classes and discussed methods to analyze large data, including MapReduce, locality sensitive hashing, recommendation systems, and efficient analysis of social networks.

Presentations:

Invited talks:

2026: University of North Carolina Center for TAIMing AI invited talk
2025: Amazon Buyer Risk Prevention Vice President invited talk
Florida International University invited talk

New Jersey Institute of Technology invited talk
University of North Carolina at Charlotte invited talk

2024: California Commission on the State of Hate's "Hate Prevention Research Convening"
Lusk Annual Retreat 2024
Stimulating STEM Summer Program for underrepresented high school students
ShowCAIS 2024

2023: California Commission on the State of Hate Subcommittee on Recommendations for Law Enforcement
ICWSM 2023

2022: Computer Vision for Cultural Heritage SIG at The Alan Turing Institute
ICWSM SocialSens Workshop
Symposium of USC-Amazon Center on Trustworthy AI

2021: Invited seminar talk at USC Information Sciences Institute
SBP-BRiMS 2021
The USC AI Futures Symposium

2020: GRIDS@USC
NetSci 2020

2019: GRIDS@USC

2018: Northeastern University
University of California Merced
USC Information Sciences Institute
APS Far West Section Fall Meeting
4th Annual International Conference on Computational Social Science
SIAM Workshop on Network Science
4th Annual Postdoctoral Research Symposium

2017: Conference on Complex Systems
International School and Conference on Network Science

2016: USC Information Sciences Institute
GRAD Symposium
Northeastern University

2015: Complexity in Business Conference
Conference on Complex Systems
SIAM Workshop on Network Science
Maryland-Mason Meeting on Complexity

2014: Complexity in Business Conference
CAM Graduate Workshop

2013: Complexity in Business Conference

Posters:

2024: USC Center for AI in society Symposium (ShowCAIS)
Title: "Mapping the Distribution of Homelessness via Remote Sensing Imagery"

2023: 17th International AAAI Conference on Web and Social Media (ICWSM)
Title: "Auditing Elon Musk's impact on hate speech and bots"

USC Center for AI in society Symposium (ShowCAIS)
Title: "What's on The Menu? Towards Predicting Nutritional Quality of a Restaurant Menu"

2022: 1st Health Equity in Action Investigator Development Annual Workshop of the NIH National Institute on Minority Health and Health Disparities Research

Coordinating Center to Reduce Disparities in Multiple Chronic Diseases (RCC-RD-MCD)
Title: "Pilot Project: Analyzing Digital Menu Data to Characterize Food Outlet Nutritional Quality in the City of Los Angeles"

2018: 12th International AAAI Conference on Web and Social Media (ICWSM)
Title: "Quantifying the Impact of Cognitive Biases in Question-Answering Systems"

2017: 3rd Annual Postdoctoral Research Symposium (2017)
Title: "Cooperation Network Responses to Shocks"

2013: Ki-Net Young Researcher Workshop (2013)
Title: "Influence and Rumor Propagation in Equilibrium on Networks"

Grants and Contracts:

2026: NSF CiTER for "Continuous Identity and Trust Management for Autonomous AI Agents", 26S-02NC, $45K, Aug.-1-26 – July 31-27
Role: Co-PI
I co-wrote the proposal and guided research into trustworthy AI agents via automated rule generation and LLM-based judgements.

2024: HCC: Small: The Evolution of Language Use in Online Communities, $600K, July-1-24 to June-30-27
Role: Co-PI and Technical Lead
I developed the concept and project and wrote the full proposal. I am also acquiring data and developing hypotheses on how social media drives extremism as well as offline attacks, which we are testing with AI multi-modal annotations.

2023: USC ISI Exploratory Research Award for "A.I.-Driven Meal Prescriptions to Meet Sociocultural and Nutritional Dietary Needs," $100K, May-1-23 to May-1-24
Role: Co-PI and AI Technical Lead
I co-wrote the proposal and developed AI methods to automatically recommend culturally appropriate meals to patients who have special nutritional requirements.

2022: DARPA AIE EMPATH. $1.0M, Aug.-1-22 – Feb.-1-24
Role: Co-PI and Technical Lead
I co-wrote the proposal, developed the concept, guided data collection, and developed AI methods to track how claims, including misinformation, have spread across mass media and social media platforms.

Southern California Center for Chronic Health Disparities in Latino Children and Families Pilot Project for "Analyzing Digital Menu," $50K, June-1-22 to May-31-23.
Role: Co-PI and AI Technical Lead
I co-wrote the proposal and developed AI methods to quantify the nutrition of food sold in restaurants and evaluate nutritional disparities in the restaurant food environment.

USC ISI Exploratory Research Award for "Why Resilience in Innovation is Necessary and How to Foster It," $100K, May-1-22 to May-1-23
Role: Co-PI
I co-wrote the proposal and developed methods to quantify the spread of claims from scientific papers to the dark corners of the web.

2021: USC-Amazon Center for Secure and Trusted Machine Learning Award for "Fast Fair Decentralized Learning," $50K, Sept-1-21 to Sept-30-22
Role: PI
I wrote the proposal and developed methods to improve the fairness of AI federated learning by reducing correlations between features and protected groups.

2021: USC ISI Exploratory Research Award for "Identifying Populations Susceptible to Anti-Science," $100K, May-1-21 to May-1-22
Role: PI
I co-wrote the proposal, developed the concept, and lad the development of methods to predict when people will perpetuate health misinformation over a year in advance.

2021: USC ISI Exploratory Research Award for "FairPRS: Fairly Predicting Genetic Risks for Personalized Medicine," $100K, May-1-21 to May-1-22
Role: Co-PI and Technical Lead
I co-wrote the proposal and developed methods to improve the fairness of polygenic risk score (PRS) prediction used to predict harmful health outcomes, including heart disease and cancer.

2020: Sandia National Laboratories contract for "Unsupervised and Semi-Supervised Inference of Material States," $20K, Jan-1-21 to Jun-1-21
Role: PI
I wrote the proposal, developed the concept, and led research into methods to detect subtle changes in the behavior of physical vapor decomposition layers.

2019: DARPA contract for "Bespoke: Learning bespoke interventions for optimizing performance in heterogeneous populations," HR0011990114, $1.0M, Jul-23-2019 to May-31-2021
Role: Co-PI and Technical Lead
I co-wrote the proposal and worked with causal modeling experts to predict the heterogenous effect of treatments, such as mental health interventions on diverse populations.

Mentorship:

PhD (co-advised):

- **Siyi (Fiona) Guo:** Published four papers so far (in ICWSM, *Philos. Trans. Royal Soc. A*, AIES, SocialSens Workshop). She is currently finishing her PhD in computer science at the University of Southern California.
- **Ashwin Rao:** Published four papers so far (in ICWSM, J. Med. Internet. Res., SocialSens Workshop, & SBP-BRiMS). He is currently finishing his PhD in computer science at the University of Southern California.
- **Zihao He:** Published three papers so far (in ICWSM & Commun. Phys.). He is currently finishing his PhD in computer science at the University of Southern California.
- **Kai Chen:** Published three papers so far (in ICWSM, CySoc Workshop, & J. Med. Internet. Res.). He is currently finishing his PhD in computer science at the University of Southern California.
- **Nathan Bartley:** Published four papers (in ASONAM, BIAS, & CySoc Workshop). He is about to complete his PhD in computer science at the University of Southern California.
- **Nazanin Alipourfard:** Published two papers (in ICWSM & Handbook on Computational Social Science Vol 2). She is currently a Machine Learning Engineer at Apple.

- **Yuzi He:** Published five papers (in EPJ Data Science, SBP-BRiMS, AIES, FDG). He is currently a Research Scientist at Meta.
- **Nazgol Tavabi:** Published one paper (in SBP-BRiMS). She is currently a postdoc at Harvard Medical School.

Master's (advised):

- **Matheus Schmitz:** Published four papers (in ICWSM, SNAM, & ASONAM) on misinformation and hate groups. He finished a master's in computer science at the University of Southern California.
- **Ashwin Balasubramanian:** Advised him on extracting extremist posts on Telegram. He finished a master's in computer science at the University of Southern California.
- **Sakshi Goel:** Advised her on developing models to predict if a story will elicit fear (pre-print https://arxiv.org/abs/2211.05369, paper in submission). She finished a master's in computer science at the University of Southern California.
- **Haripriya (Priya) Dharmala:** Advised her to develop metrics that distinguish scary stories from non-scary stories (pre-print https://arxiv.org/abs/2211.05369, paper in submission). She finished a master's in computer science at the University of Southern California.
- **Yuchen Zhang:** Advised him to extract topic models and other features from scary stories (pre-print https://arxiv.org/abs/2211.05369, paper in submission). He finished a master's in computer science at the University of Southern California.

Undergraduate (advised):

- **Xavier Wilson:** Ongoing research detecting AI images and AI image-based scams.
- **Ryan Gwinn:** Ongoing research detecting scam tactics and the types of victims targeted.
- **Jonathan Conde:** Ongoing research on optimizing counter-narrative speech generation.
- **Patience Ventura:** Ongoing research on optimizing counter-narrative speech generation.
- **Qi Ye:** Ongoing research related to analyzing LLM and information operation influence tactics.
- **Arohi Shiraskar:** Ongoing research related to categorizing scams in social media.
- **Tevin Parathattal:** Semester study detecting scams in social media.
- **Daniel Hickey:** Published two papers (in ICWSM & SNAM) on hate groups, three more are in submission. He is now a PhD student in information science at the University of California Berkeley.
- **Elise Hadidi:** Currently advising her on analyzing text that distinguishes social media users who join online hate groups from those who do not (paper in submission soon). She is finishing a B.S. in economics and data science at the University of Southern California.
- **Qihan Wang:** Advised her to create models that detect hate speech in social media. She is currently finishing her master's in data science at New York University.
- **James Fu:** Advised him to collect data on online hate group participation over time. He is currently finishing a B.S. in computer science at the University of California Davis.

Service:

Professional:

2026: Lead organizer CCI Seminar Series
Committee member, CCI Undergraduate Education Committee
Master's Thesis Committee Member
REU Advisor

2025-2026: Guest Editor, Electronics
2024: Co-organizer, USC Workshop on Artificial Intelligence for Discovery in the Sciences
2022-present: Editor, Social Network Analysis and Mining
Editor, PLoS Complex Systems
2022-2023: Associate Chair, CSCW
2020-2024: Organizer of Fairness and Bias ISI Internal Seminar Series
2020-2023: Co-organizer of USC GRIDS DataFest
2022: Co-organizer of the INTERSPEECH Special Session "Inclusive and Fair Speech
Session chair of WebConf 2022 Social Network Analysis and Graph Algorithms Track
2020-2021: Organizer of USC ISI's AI Seminar Series
2020: Organizer of Summer School on Sensor-Based Behavioral Machine Learning (S3B2-ML)
2018: Organizer of UC Davis Complex Systems Working Group

Media and outreach:

2026: **Television mention** with Last Week Tonight with John Oliver
2024: **Newspaper interview** with the New York Times and The Wall Street Journal on hate speech in social media.
Research related to misinformation and hate speech in social media mentioned in Newsweek, USC Magazine, and Georgetown Days Magazine.
2023: **Newspaper interview** with The Wall Street Journal, Reuters, The LA Times, WIRED, and CNBC on social bots and hate speech in social media.
Radio interview with KCBS on hate speech in social media.
Television interview with France 24 on hate speech in social media.
Research related to Wikipedia biases and hate speech in social media mentioned in Nature, the New York Times, Fast Company, The New Statesman, Tech Times, Phys.org, and others.
Social media engagement. Posts on "Auditing Elon Musk's Impact on Hate Speech and Bots" were *reposted more than 10,000 times on X* (formerly Twitter), appeared in Reddit (*front page of r/technology*), and Hacker News (*front page*).
2021: **Research related to political biases and anti-science attitudes mentioned** in International Business Times India, Tribune India, The Tyee, Telengana Today, New Kerala, Dailyhunt, and others.

Reviewing:

2026: ICWSM, CSCW, PLoS Complex Systems, PLoS ONE, TrustNLP, NeurIPS, ICML, ECML-PKDD, ACM Computing Surveys, Applied Soft Computing, AAAI
2025: ICWSM, PLoS Complex Systems, TrustNLP, ECML-PKDD
2024: ICWSM, CSCW, PLoS Complex Systems, Physical Review Letters, TrustNLP
2023: ICWSM, CSCW, PLoS ONE, PLoS Complex Systems, Humanities and Social Sciences Communications, EPJ Data Science, Journal of Industrial Ecology, Online Social Networks and Media, IEEE Transactions on Computational Social Systems
2022: ICWSM, WSDM, ICDM, SBP-BRiMS, PNAS Nexus, OSNEM, Communications in Nonlinear Science and Numerical Simulation, EPJ Data Science, PLoS ONE, Physical Review E, Frontiers in Public Health, Information and Software Technology, Data in Brief

2021:	KDD, ICWSM, Nature Communications, Communications Physics, Inf. Process. Manage., OSNEM, Scientific Reports
2020:	The WebConf (formally WWW), AAAI, KDD, WSDM, CMAME, Proc. Royal Society A, EPJ Data Science, 6G Series IEEE Vehicular Technology Magazine, JSTAT, Inf. Process. Manage., Frontiers in Physics **Panel review:** "AI for Decision Support" (DOE)
2019:	ICWSM, WWW, KDD, WebSci, Frontiers of Big Data, Chaos, CMAME **Proposal review:** NSF MMS
2018:	Scientific Reports, Frontiers of Big Data, Chaos
2017:	Scientific Reports, PLoS ONE, IEEE Transactions on Computational Social Systems, Phys. Rev. E