

Homa Hosseinmardi

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Research topics	Computational Social Science, Auditing Sociotechnical Systems, Network Science, Statistical and Causal Inference	
Positions Held	2023 - present	Visiting researcher, Digital Safety Research Institute
	2020 - present	Senior Research Associate, Computational Social Science Lab, University of Pennsylvania
	2019 - 2020	Postdoctoral Research Fellow, Computational Social Science Lab, University of Pennsylvania
	2019	Machine Learning Scientist, Capital One
	2017 – 2018	Postdoctoral Research Fellow, Information Sciences Institutes, University of Southern California
	2015 - 2017	Research Scientist, Danaher Labs
Education	2012 - 2015	PhD, Computer Science, University of Colorado Boulder Thesis: <i>Multimodal Labeling and Characterization of Social Network Data for Detection and Prediction of Cyberbullying</i>
Works in Progress	<ul style="list-style-type: none">∞ H. Hosseinmardi, U. Dutta, D. J. Watts, “Disentangling the Role of Users and Platform Features in the Online Ecosystem.” Invited perspective piece, <i>Nature Computational Science</i>.∞ H. Hosseinmardi, <i>et al</i>, “Harmful Online Communications: Challenges and Potentials for Interdisciplinary Research.”∞ H. Hosseinmardi, A. Ghasemian, D. J. Watts, “Large-Scale Long-Tailed Classification in an Open World.”∞ C. Ahn, S. Wolken, H. Hosseinmardi, S. Soroka, D. J. Watts, “Multimodal Stance Detection in the Wild.”∞ X. Liu, H. Hosseinmardi, D. J. Watts, D. Albarracín, “Evaluating the Efficacy of Intervention Strategies in Bypassing Misinformation.”	
Selected Papers	<ul style="list-style-type: none">▲ H. Hosseinmardi, S. Wolken, D. Rothschild, D. J. Watts, “The Diminishing State of Shared Reality on US Television News.” <i>Proceedings of the National Academy of Sciences (R&R)</i>, 2023.▲ H. Hosseinmardi, A. Ghasemian, M. Rivera-Lanas, M. Ribeiro, B. West, D. J. Watts, “Causally Estimating the Effect of YouTube's Recommender System using Counterfactual Bots.” <i>Proceedings of the National Academy of Sciences (R&R)</i>, 2023.▲ H. Hosseinmardi, A. Ghasemian, K. Lerman, and E. Ferrara, “Tensor Regression: A Supervised Framework for Human Behavioral Data Mining and Prediction.” <i>IEEE ICHI</i> 2023.▲ M. Ribeiro, H. Hosseinmardi, B. West, D. J. Watts, “Deplatforming did not Decrease Parler Users’ Activity on Fringe Social Media.” <i>PNAS nexus</i> 2, no. 3 (2023).▲ D. Muise, H. Hosseinmardi, D. Rothschild, M. Mobius, D. J. Watts, “Quantifying Partisan News Diets in Web and TV Audiences.” <i>Science advances</i> 8, no. 28 (2022).	

- ▲ **H. Hosseinmardi**, A. Ghasemian, A. Clauset, D. Rothschild, Markus Mobius, D. J. Watts, “Examining the Consumption of Radical Content on YouTube.” *Proceedings of the National Academy of Sciences* 118, no. 32, 2021.
- ▲ A. Ghasemian, **H. Hosseinmardi**, A. Galstyan, E. M. Airoldi, and A. Clauset. “Stacking Models for Nearly Optimal Link Prediction in Complex Networks.” *Proceedings of the National Academy of Sciences* 117, no. 38, 2020.
- ▲ A. Ghasemian, **H. Hosseinmardi**, and A. Clauset, “Evaluating Overfit and Underfit in Models of Network Community Structure.” *IEEE Transactions on Knowledge and Data Engineering* 32, no. 9 (2019): 1722-1735.
- ▲ **H. Hosseinmardi**, R. Ibn Rafiq, R. Han, S. Mishra, Q. Lv, “Prediction of Cyberbullying Incidents in a Media-based Social Network.” In 2016 *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, pp. 186-192. IEEE, 2016.
- ▲ **H. Hosseinmardi**, R. Ibn Rafiq, S. A. Mattson, R. Han, S. Mishra, Q. Lv, “Analyzing Factors Impacting Reviving on the Vine Social Network.” In *International Conference on Social Informatics*, pp. 17-32. Springer, Cham, 2015.

Professional Services

- ♣ Program Committee Chair, The International Conference for Computational Social Science, 2024.
- ♣ Co-founder of CU CyberSafety Research Center and workshop series on Computational Methods for CyberSafety.
- ♣ Organizing the First International Workshop on Computational Methods for CyberSafety, CIKM 2016. a Technical Program Committee Co-chair, International Workshop on Computational Methods for CyberSafety, WWW 2017, 2018, 2020.
- ♣ Workshop Co-chair, The Fourth Workshop on Computational Methods in Online Misbehavior, WWW 2019.
- ♣ Journal review: Nature, PNAS, Science Advances, EPJ Data Science, PLOS ONE, and Future Generation, Computer Systems Journal, Computers in Human Behavior Journal.
- ♣ Program committee: The Web Conf (WWW), WSDM, NetSci, IC2S2, ASONAM, WiDS a Reviewer: ICWSM, ICDM, SDM

Recent Talks

- δ Invited speaker, Conference on Harmful Online Communication (CHOC 2023), GESIS, Germany (Nov 2023)
- δ Invited speaker, Fairness and Safety Speaker Series, YouTube, NYC (Sep 2023)
- δ Invited speaker, the Wharton School’s Women in Data Science Conference (Feb 2023)
- δ Invited Moderator, NYU’s Center for Social Media and Politics Seminar Series, “Media Consumption, Misinformation, and Polarization” (October 12, 2022)
- δ Invited speaker, Statistical Inference for Network Models satellite (July 2022)
- δ Seminar series, Boston University (March 2022)
- δ Seminar series, Georgetown University (February 2022)
- δ Seminar series, Cornell University (February 2022)
- δ Seminar series, Georgia Institute of Technology (January 2022)
- δ Seminar series, University of Illinois-Urbana Champion (January 2022)
- δ Beyond Misinformation Workshop (August 2021)

Media Coverage

- ∞ “Cable News Confusion” (September 27, 2022) — Research presented in talk at PolitiFact’s virtual [United Facts of America conference](#).
- ∞ “YouTube pushed Trump supporters toward voter fraud videos, study finds” (September 1, 2022) — Featured as an expert counterpoint opinion in [NBC News](#).

- ∞ “TV Echo Chambers and Political Polarization” (August 18, 2022) — Broadcast live on Sydney’s 2SER 107.3FM, research was the central topic of the [Fourth Estate](#) radio show
- ∞ “Homa Hosseinmardi on TV, Social Media and Political Echo Chambers” (August 17, 2022) — Featured in [Penn Engineering Today](#).
- ∞ “Don’t be too quick to blame social media for America’s polarization – cable news has a bigger effect, study finds” (August 10, 2022) — Original research op-ed featured in [The Conversation US](#)
- ∞ “TV news top driver of political echo chambers in U.S.” (July 26, 2022) — Featured in [Penn Today](#)
- ∞ “A Platform ‘Weaponized’: How YouTube Spreads Harmful Content—And What Can Be Done About It” (June 2022) — Research cited in [NYU Stern Center for Business and Human Rights’ report](#) on misinformation on YouTube
- ∞ “Wharton Women in Data Science and Analytics” (March 6, 2022) — Featured in the Wharton School’s list of [Women Creating Social Impact with Analytics](#)
- ∞ “Misinformation: What Should Our Tech Overlords Do?” (February 24, 2022) — Interviewed by Gimlet Media’s [Science VS](#) podcast
- ∞ “What Big Data Reveals About Online Extremism” (November 2021) — Interview/spotlight piece featured in [Annenberg School for Communication news](#)
- ∞ Research cited in congress (October 2021) — “Evaluating the scale, growth, and origins of right-wing echo chambers on YouTube” cited in an expert testimony in a [hearing of the U.S. Senate Committee on Homeland Security and Governmental Affairs](#)
- ∞ “If YouTube’s algorithms radicalize people, it’s hard to tell from the data” (August 2021) — Research on the consumption of radical content on YouTube covered in [Ars Technica](#)
- ∞ “YouTube Chief Product Officer Neal Mohan on the Algorithm, Monetization, and the Future for Creators” (August 2021) — Research on the consumption of radical content on YouTube covered in [The Verge](#)
- ∞ “Studie: Youtube radikalisiert User nicht systematisch” (August 3, 2022) — Interviewed by German radio and journal [Deutschlandfunk](#)

Teaching and Mentorship

Guest lectures

- √ Computer Science—Probabilistic Models of Human and Machine Intelligence (grad, Fall 2015)
- √ Computer Science—Fundamentals of Human Computer Interaction (undergrad, Spring 2014)

Teaching

- √ Instructure, Cambridge Center for International Research (Summer-Fall 2022)
- √ Danaher Labs, Data Science bootcamps (Spring 2016, Fall 2017)
- √ Teaching Assistant for undergraduate signal processing course, University of Tehran, Fall 2009, Spring 2010

Mentorship

- ♣ (PhDs) Upasana Dutta, Bethany Hsiao, Chloe Ahn, Sam Wolken, Hsien-Te Kao, Shen Yan, Rahat Ibn Rafigh;
- ♣ (MSs) Yue Chen, Rachel S. M. Leong, Zhangyi Fan, Xiaonan Liu, Keith Golden, Kailun Li, Tai Nguyen, Yihong Zhang, Robby Qiu;
- ♣ (UGs) Josh Ludan, Misty Liao, Seven Fandozzi, Vivienne Chen, Henry Ge, Anna Callahan;
- ♣ (Google Summer of Code Intern) Karanjot Singh;
- ♣ (Danaher Corporation) Shaghayegh Kazemlu, Abbas Hooshmand, Peng Wang, Lisa Norgard, Eliyar Asgharieh.
- ♣ Summer School on Methods for Computational Social Science, ISI, USC, Summer 2018.

Awards

- Co-PI, \$20,000 - Modeling YouTube Users’ Production and Consumption of News, Google Award.
- Allocation Manager, \$100,000 - COVID19 HPC Consortium award for “COVID Mapping and Modeling for City of Philadelphia.”
- University of Colorado Boulder, Department of Computer Science Outstanding Research Award, May 2015.
- University of Colorado Boulder, Department of Computer Science Graduate Student Fellowship, Fall 2012.

- Other Experiences
 - [YouTube Politics, Living Journal.](#)
 - [Measuring the Information Ecosystem.](#) (In Progress)
 - Analysis of the mobility data of Covid-19 for the City of Philadelphia: Optimal Interventions to Control COVID-19 in Networked Populations, J. F. Barreras, V. Preciado, H. Hassani, D. J. Watts, **H. Hosseinmardi**, A. Ghasemian, M. Whiting.

- Other Publications
 - N. Tavabi, **H. Hosseinmardi**, J. L. Villatte, A. Abeliuk, S. Narayanan, E. Ferrara, and K. Lerman. "Learning Behavioral Representations from Wearable Sensors." In International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation, pp. 245-254. Springer, Cham, 2020.
 - H. Kao, S. Yan, **H. Hosseinmardi**, S. Narayanan, K. Lerman, and Emilio Ferrara. "User-Based Collaborative Filtering Mobile Health System." Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies 4, no. 4, 1-17, 2020.
 - S. Yan, **H. Hosseinmardi**, H. T. Kao, S. Narayanan, K. Lerman, E. Ferrara, "Affect Estimation with Wearable Sensors." Journal of Healthcare Informatics Research, 1-34, 2020.
 - S. Yan, **H. Hosseinmardi**, H. T. Kao, S. Narayanan, K. Lerman, E. Ferrara, "Estimating individualized daily self-reported affect with wearable sensors." In 2019 IEEE International Conference on Healthcare Informatics (ICHI), pp. 1-9. IEEE, 2019.
 - H. T. Kao, S. Yan, D. Huang, N. Bartley, **H. Hosseinmardi**, E. Ferrara, "Understanding Cyberbullying on Instagram and askfm via Social Role Detection." In Companion Proceedings of the 2019 World Wide Web Conference, pp. 183-188. 2019.
 - H. T. Kao, **H. Hosseinmardi**, S. Yan, M. Hasan, S. Narayanan, K. Lerman and E. Ferrara, "Discovering Latent Psychological Structures from Self-report Assessments of Hospital Workers." International Conference on Behavioral, Economic, and SocioCultural Computing (BESCC2018) (best paper award).
 - Ghasemian, **H. Hosseinmardi**, and A. Clauset, "Evaluating Overfit and Underfit in Models of Network Community Structure." IEEE Transactions on Knowledge and Data Engineering 32, no. 9 (2019): 1722-1735.
 - P. Goyal, **H. Hosseinmardi**, E. Ferrara, A. Galstyan, "Capturing edge attributes via network embedding." IEEE Transactions on Computational Social Systems 5, no. 4 (2018): 907-917.
 - P. Goyal, **H. Hosseinmardi**, E. Ferrara, A. Galstyan, "Embedding networks with edge attributes." In Proceedings of the 29th on Hypertext and Social Media, pp. 38-42, 2018.
 - R. Ibn Rafiq, **H. Hosseinmardi**, R. Han, Q. Lv, S. Mishra, "Scalable and timely detection of cyberbullying in online social networks." In Proceedings of the 33rd Annual ACM Symposium on Applied Computing, pp. 1738-1747. 2018.
 - **H. Hosseinmardi**, R. Ibn Rafiq, R. Han, S. Mishra, Q. Lv, "Prediction of Cyberbullying Incidents in a Media-based Social Network." In 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), pp. 186-192. IEEE, 2016.
 - **H. Hosseinmardi**, R. Ibn Rafiq, S. A. Mattson, R. Han, S. Mishra, Q. Lv, "Analyzing Factors Impacting Reviving on the Vine Social Network." In International Conference on Social Informatics, pp. 17-32. Springer, Cham, 2015.
 - R. Ibn Rafiq, **H. Hosseinmardi**, R. Han, Q. Lv, S. Mishra, and S. A. Mattson. "Careful what you share in six seconds: Detecting cyberbullying instances in Vine." In 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), pp. 617-622. IEEE, 2015.
 - R. Ibn Rafiq, **H. Hosseinmardi**, S. A. Mattson, R. Han, Q. Lv, S. Mishra, "Analysis and detection of labeled cyberbullying instances in Vine, a video-based social network." Social network analysis and mining 6, no. 1, 1-16, 2016.
 - **H. Hosseinmardi**, R. Ibn Rafiq, R. Han, S. Mishra, Q. Lv, "Analyzing Labeled Cyberbullying Incidents on the Instagram Social Network." In International conference on social informatics, pp. 49-66. Springer, Cham, 2015.

- **H. Hosseinmardi**, N. Correll, and R. Han, “Distributed Spatio-Temporal Gesture Recognition in Sensor Arrays.” *ACM Transactions on Autonomous and Adaptive Systems (TAAS)* 10, no. 3, 1-19, 2015.
- **H. Hosseinmardi**, A. Ghasemian, R. Han, Q. Lv, and S. Mishra, “Towards Understanding Cyberbullying Behavior in a Semi-anonymous Social Network.” In *2014 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2014)*, pp. 244-252. IEEE, 2014.
- **H. Hosseinmardi**, R. Ibn Rafiq, S. Li, Z. Yang, R. Han, Q. Lv and S. Mishra, “A Comparison of Common Users across Instagram and ask.fm to Better Understand Cyberbullying.” In *2014 IEEE Fourth International Conference on Big Data and Cloud Computing*, pp. 355-362. IEEE, 2014.
- S. Ma, **H. Hosseinmardi**, N. Farrow, R. Han, and N. Correll, “Establishing Multicast Groups in Computational Robotic Materials.” In *2012 IEEE International Conference on Green Computing and Communications*, pp. 311-316. IEEE, 2012.
- **H. Hosseinmardi**, R. Han, and N. Correll, “Bloom Filter-Based Ad Hoc Multicast Communication in Cyber-Physical Systems and Computational Materials.” In *International Conference on Wireless Algorithms, Systems, and Applications*, pp. 595-606. Springer, Berlin, Heidelberg, 2012.
- **H. Hosseinmardi**, and F. Lahouti, “Multicast lifetime maximization using network coding: A cross-layer approach.” In *2008 24th Biennial Symposium on Communications*, pp. 1-4. IEEE, 2008.
- **H. Hosseinmardi**, and F. Lahouti, “Online multicasting using network coding in energy constrained wireless ad hoc networks.” In *2008 3rd International Symposium on Wireless Pervasive Computing*, pp. 545-549. IEEE, 2008.
- H. Kao, S. Yan, **H. Hosseinmardi**, S. Narayanan, K. Lerman, and Emilio Ferrara. “User-Based Collaborative Filtering Mobile Health System.” *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 4, no. 4, 1-17, 2020.
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- **H. Hosseinmardi**, E. Ferrara, K. Lerman, “Discovering Hidden Structure in High Dimensional Human Behavioral Data via Tensor Factorization.” *Hetronam, WSDM 2018*.
- P. Goyal, **H. Hosseinmardi**, E. Ferrara, A. Galstyan, “Embedding networks with edge attributes.” In *Proceedings of the 29th on Hypertext and Social Media*, pp. 38-42, 2018.
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- **H. Hosseinmardi**, A. Ghasemian, R. Han, Q. Lv, and S. Mishra, “Towards Understanding Cyberbullying Behavior in a Semi-anonymous Social Network.” In 2014 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2014), pp. 244-252. IEEE, 2014.
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