Homa Hosseinmardi

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Computational Social Science Lab

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Research topics Computational Social Science, Auditing Sociotechnical Systems, Network Science, Statistical Inference

Positions Held

2024 - present	Assistant Professor, UCLA
2020 - 2024	Senior Research Associate, Computational Social Science Lab, University of Pennsylvania
2023	Visiting scholar, Digital Safety Research Institute
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: *Multimodal Labeling and Characterization of Social Network Data for Detection and Prediction of Cyberbullying*

Works in Progress

- ∞ **H. Hosseinmardi**, U. Dutta, D. J. Watts, "Disentangling the Role of Users and Platform Features in the Online Ecosystem." Invited perspective piece, Nature Computational Science.
- ∞ **H. Hosseinmardi**, *et al*, "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, "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

- ⅄ **H. Hosseinmardi**, S. Wolken, D. Rothschild, D. J. Watts, "The Diminishing State of Shared Reality on US Television News." *Under Review*, 2024.
- ⅄ **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." *Proceedings of the National Academy of Sciences*, 2024.
- ⅄ **H. Hosseinmardi**, A. Ghasemian, K. Lerman, and E. Ferrara, "Tensor Regression: A Supervised Framework for Human Behavioral Data Mining and Prediction." *IEEE ICHI* 2023.
- ⅄ M. Ribeiro, **H. Hosseinmardi**, B. West, D. J. Watts, "Deplatforming did not Decrease Parler Users' Activity on Fringe Social Media." *PNAS* nexus 2, no. 3 (2023).

- D. Muise, **H. Hosseinmardi**, D. Rothschild, M. Mobius, D. J. Watts, "Quantifying Partisan News Diets in Web and TV Audiences." *Science advances* 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 Revining 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

- Invited speaker, Political and Information Networks Workshop (April 2024)
- Seminar series, University of Virginia (March 2024)
- Seminar series, University of Arizona (March 2024)
- Seminar series, University of Binghamton (March 2024)
- Seminar series, University of Luisiana (March 2024)
- Seminar series, Drexel University (Feb 2024)
- Seminar series, NYU's Center for Social Media and Politics (Dec 2023)
- Invited speaker, Conference on Harmful Online Communication (CHOC 2023), GESIS, Germany (Nov 2023)
- Invited speaker, Fairness and Safety Speaker Series, YouTube, NYC (Sep 2023)
- Invited speaker, the Wharton School's Women in Data Science Conference (Feb 2023)
- Seminar series, University of California, Los Angeles (January 2023)
- Invited Moderator, NYU's Center for Social Media and Politics Seminar Series, "Media Consumption,
- Misinformation, and Polarization" (October 12, 2022)
- Invited speaker, Statistical Inference for Network Models satellite (July 2022)
- Seminar series, Boston University (March 2022)
- Seminar series, Georgetown University (February 2022)
- 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—Ethics and Activism in Tech and Design, UCSC (grad, Spring 2024)
√ 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 (BESC2018) (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 Revining 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. 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 (BESC2018) (best paper award).
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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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- 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.
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