

# Shen Yan

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## Education

- 2017-2022 University of Southern California Los Angeles, CA**  
Ph.D. in Computer Science  
Information Sciences Institute  
Machine Intelligence and Data Science (MINDS) research group  
Advisor: Emilio Ferrara  
Dissertation: *Fair Machine Learning for Human Behavior Understanding*
- 2014-2017 University of Chinese Academy of Sciences Beijing, China**  
M.S. in Computer Science  
Institute of Information Engineering, Chinese Academy of Sciences  
Thesis: *Differential Privacy Based Privacy-Preserving Mechanisms in Online Social Networks*
- 2010-2014 Hebei University of Technology Tianjin, China**  
B.E. in Electronic Information Engineering

## Work Experience

- Meta Research - Core Data Science Menlo Park, CA**  
*Research Scientist* May 2022 - Present
- Research on user interaction and behaviors across Meta for business and social science applications.
- Meta Research - Core Data Science Menlo Park, CA (Remote)**  
*Research Intern* May 2021 - Nov. 2021  
Mentor: Kristen Altenburger
- Research on users' friendship networks and interaction patterns.

## Selected Research Projects

- Fair Machine Learning for Multimodal Human Behavior Understanding Los Angeles, CA**  
*Research Assistant* Aug. 2019 - May 2022
- Analyzing the heterogeneous patterns of multimodal human behavior data.
  - Developing machine learning models that will identify, account for, and mitigate the biases of multimodal human behavior modeling methods.
- IARPA MOSAIC: Tracking Individual Performance with Sensors (TILES) Los Angeles, CA**  
*Research Assistant* Jan. 2018 - Aug. 2020

- Understanding how individual differences, mental states, and well-being affect job performance by collecting physical information through the use of wearable sensors, environmental information through the use of environmental sensors, and behavioral information through the use of surveys.
- Core member of the modeling team, in charge of building predictive models.

## Understanding Cyberbullying Across Online Social Platforms

Los Angeles, CA

Sept. 2018 - May 2022

- Fine-grained analysis of users' social roles in cyberbullying across online social platforms (Instagram, Ask.fm, etc.).
- Understanding the social dynamics of cyberbullying events.

## Publications

- **S. Yan**, K.M. Altenburger, Y.-C. Wang, and J. Cheng, “**What Does Perception Bias on Social Networks Tell Us about Friend Count Satisfaction?**” in proc. The ACM Web Conference 2022 (WWW’22), pp. 2687-2695, Apr. 2022.
- Y.-H. Ezzeldin\*, **S. Yan\***, C. He, E. Ferrara, and S. Avestimehr, “**FairFed: Enabling Group Fairness in Federated Learning,**” NeurIPS 2021 Workshop on Federated Learning: Privacy, Fairness, Robustness, Personalization and Data Ownership, Oct. 2021. (**co-first author**)
- **S. Yan**, H.-T. Kao, S. Narayanan, K. Lerman, and E. Ferrara, “**Mitigating the Bias of Heterogeneous Human Behavior in Affective Computing,**” in proc. 9th International Conference on Affective Computing & Intelligent Interaction (ACII 2021), pp. 1-8, Sept. 2021.
- H.-T. Kao, **S. Yan**, H. Hosseinmardi, S. Narayanan, K. Lerman, and E. Ferrara, “**User-based collaborative filtering mobile health system,**” *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, vol. 4(4), pp. 1-17, Dec. 2020.
- **S. Yan**, H.-T. Kao, and E. Ferrara, “**Fair class balancing: Enhancing model fairness without observing sensitive attributes,**” in proc. 29th ACM International Conference on Information and Knowledge Management (CIKM’20), pp. 1715-1724, Oct. 2020.
- **S. Yan**, D. Huang, M. Soleymani, “**Mitigating biases in multimodal personality assessment,**” in proc. 22nd ACM International Conference on Multimodal Interaction (ICMI’20), pp. 361-369, Oct. 2020.
- J. Jiang, E. Chen, **S. Yan**, K. Lerman, and E. Ferrara, “**Political polarization drives online conversations about COVID-19 in the United States,**” *Human Behavior and Emerging Technologies*, vol. 2, pp. 200-211, July 2020.
- **S. Yan**, H. Hosseinmardi, H.-T. Kao, S. Narayanan, K. Lerman, and E. Ferrara, “**Estimating affects with wearable sensors,**” *Journal of Healthcare Informatics Research*, Springer, pp. 1-34, Mar. 2020.
- **S. Yan**, H. Hosseinmardi, H.-T. Kao, S. Narayanan, K. Lerman, and E. Ferrara, “**Estimating individualized daily self-reported affect with wearable sensors,**” in proc. 7th IEEE International Conference on Healthcare Informatics (ICHI’19), pp. 1-9, June 2019.
- **S. Yan**, “**Modeling behavioral traits and well-being using human biosignals: Challenges and methods,**” in proc. 7th IEEE International Conference on Healthcare Informatics (ICHI’19), pp. 1-2, June 2019.
- H.-T. Kao, **S. Yan**, D. Huang, N. Bartley, H. Hosseinmardi, and E. Ferrara, “**Understanding cyberbullying on Instagram and Ask.fm via social role detection,**” in proc. 4th Workshop on Computational Methods in Online Misbehavior Co-located with The Web Conference (CyberSafety’19), pp. 183-188, May 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,**” in proc. 2018 5th International Conference on Behavioral, Economic, and Socio-Cultural Computing (BESC’18), pp. 156-161, Nov. 2018.

- A. Deb, A. Majmundar, S. Seo, A. Matsui, R. Tandon, **S. Yan**, J. Allem, and E. Ferrara, “**Social bots for online public health interventions**,” in proc. The 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM’18), pp. 186-189, Aug. 2018.
- M. Wang, W.-T. Zhu, **S. Yan**, Q. Wang, “**SoundAuth: Secure zero-effort two-factor authentication based on audio signals**,” in proc. 6th IEEE Conference on Communications and Network Security (CNS’18), pp. 1-9, May 2018.
- **S. Yan**, S. Pan, W.-T. Zhu, and K. Chen, “**DynaEgo: Privacy-preserving collaborative filtering recommender system based on social-aware differential privacy**,” in K. Y. Lam, C. H. Chi, and S. Qing (Eds.): 18th International Conference on Information and Communications Security (ICICS’16), *Lecture Notes in Computer Science*, vol. 9977, pp. 347–357, Nov. 2016.
- L. Yang, F. Fang, X. Lu, W. T. Zhu, Q. Wang, **S. Yan**, and S. Pan, “**A secure and fast dispersal storage scheme based on the learning with errors problem**,” in proc. 12th EAI International Conference on Security and Privacy in Communication Networks (SecureComm’16), pp. 392–411, Oct. 2016.
- **S. Yan**, S. Pan, Y. Zhao, and W.-T. Zhu, “**Towards privacy-preserving data mining in online social networks: Distance-grained and item-grained differential privacy**,” in J. K. Liu and R. Steinfeld (Eds.): 21st Australasian Conference on Information Security and Privacy (ACISP’16), Part I, *Lecture Notes in Computer Science*, vol. 9722, pp. 141–157, July 2016.
- S. Pan, **S. Yan**, and W.-T. Zhu, “**Security analysis on privacy-preserving cloud aided biometric identification schemes**,” in J. K. Liu and R. Steinfeld (Eds.): 21st Australasian Conference on Information Security and Privacy (ACISP’16), Part II, *Lecture Notes in Computer Science*, vol. 9723, pp. 446–453, July 2016.

## Services

### Program Committee

ACM Conference on Web Science (WebSci)	2020 - 2022
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### Reviewers

ACM CHI Conference on Human Factors in Computing Systems (CHI)	2022
ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)	2022
ACM International Conference on Multimodal Interaction (ICMI)	2022
ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW)	2022
International Journal of Computer Vision (IJCV)	2021
International World Wide Web Conference (WWW)	2019 - 2021
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)	2020
International Conference on Data Mining (ICDM)	2019
International Conference on Advances in Social Networks Analysis and Mining (ASONAM)	2019
International AAAI Conference on Web and Social Media (ICWSM)	2019, 2022

## Teaching Experience

### Teaching Assistantship

CSCI 103, Introduction to Programming	Fall 2017
CSCI 102, Fundamentals of Computation	Spring 2018, Fall 2020 - Fall 2021

### Mentorship

Yiyun Zhu, Qufei Wang, Tong Zuo (USC undergraduate research intern)  
Xinyi Peng (USC graduate research intern)

## **Selected Awards & Grants**

ACM SIGIR Student Travel Grant	2020
NSF Student Travel Grant	2019
Distinguished Research on Digital Humanities Award on BESC conference	2018
Best Undergraduate Thesis	2014