Shen Yan

+1(213)-709-1755 • shenyan@usc.edu
https://yanshentracy.github.io/page

Education

University of Southern California, Information Sciences Institute — **Los Angeles, CA**
Ph.D. Student in Computer Science — *Aug. 2017–Present*
- Research Interests: Machine Learning, Data Science, Computational Social Science

University of Chinese Academy of Sciences — **Beijing, China**
M.S. in Computer Science — *Sept. 2014–July 2017*
- State Key Laboratory of Information Security
- Major GPA: 91.7/100
- Research Interests: Social Computing, Privacy Preserving

Hebei University of Technology — **Tianjin, China**
B.E. in Electronic Information Engineering — *Sept. 2010–June 2014*
- Overall GPA: 3.81/4.0 Major GPA: 3.92/4.0
- Ranking: 1/57

Research Experience

Social Role Detection Across Online Social Platforms to Understand Cyberbullying — **Los Angeles, CA**
Sept. 2018–Present
- Fine-grained analysis of users' social roles in cyberbullying across online social platforms.
- Designing automatic social role detection algorithm.

TILES: Tracking Individual Performance with Sensors — **Los Angeles, CA**
Research Assistant — *Jan. 2018–Present*
- 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.
- Member of the modeling team, in charge of building prediction models.

Health Communication Bot on Social Media — **Los Angeles, CA**
Jan. 2018–May 2018
- Designing a health communication bot to intervene with relevant smoking prevention messages when Twitter users post pro-tobacco tweets. Sub-problems include determining which tweets so susceptibility to tobacco, determining a profile of the user, determining if there should be an intervention and selecting a personalized/customized intervention.

Social-Aware Private-Preserving Recommender System — **Beijing, China**
Research Assistant — *Mar. 2016–June 2017*
- Designed a privacy-preserving collaborative filtering mechanism in recommender system, which aims to protect users' rating history from leakage.
- Used the social information and the principle of differential privacy to provide a rigorous as well as fine-grained protection.
- Compared with the state-of-the-art privacy-preserving mechanism, the proposed algorithm outperforms in both the quality of recommendations and the resistance to the inference attack.

Fine-Grained Differential Privacy Data Mining Algorithm — **Beijing, China**
Research Assistant — *Dec. 2015–Mar. 2016*

- Designed a fine-grained differential privacy mechanism: more distant users get more perturbed information, and users can set different privacy levels for different items.
- Used the structure of online social networks to build the correlation between the noise additions, which provide a novel method to withstand the collusion attacks.
- The proposed method solves the problem that the privacy budget of previous work would increase under collusion attacks, which ensures that colluded users cannot deduce more accurate information.

Resource Allocation Methods in Wireless Sensor Networks **Tianjin, China**
Research Assistant *Dec. 2013–May 2014*

- Transplanted TinyOS system into CC2530.
- Analyzed the GTS mechanism in IEEE 802.15.4 protocol.
- Designed an allocation method of channels and time slots in IEEE 802.15.4 networks.

Publications

- **S. Yan**, H. Hosseinmardi, H.-T. Kao, S. Narayanan, K. Lerman, E. Ferrara, **"Estimating individualized affect variation of hospital workers,"** *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, ACM. (Under Review)
- H.-T. Kao, H. Hosseinmardi, **S. Yan**, M. Hasan, S. Narayanan, K. Lerman, E. Ferrara, **"Discovering latent psychological structures from self-report assessments of hospital workers,"** to appear in proc. 5th International Conference on Behavioral, Economic, and Socio-Cultural Computing, Nov. 2018. (Accepted)
- A. Deb, A. Majmundar, S. Seo, A. Matsui, R. Tandon, **S. Yan**, J. Allem, and E. Ferrara, **"Social bots for online public health interventions,"** to appear in proc. The 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM'18), 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.
- S. R. Fan, **S. Yan**, and M. Gao, **"Guaranteed time slots allocation in multi-node wireless sensor networks,"** *Chinese Journal of Sensors and Actuators*, vol. 27, No. 7, pp. 976-981, July. 2014.

Computer Skills

- Programming Language: C/C++, Python, MATLAB
- Operating Systems: Windows, Linux (Ubuntu)
- Data science, data security & privacy, machine learning, social network mining, communication technology, cryptography.