Shen Yan | Curriculum Vitae

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Education

Institute of Information Engineering, Chinese Academy of Sciences — **Beijing, China**
Candidate for M.S. in Information Security — *Sept. 2014–Present*

- State Key Laboratory of Information Security
- GPA: 3.74/4.0
- Research Interests: Social Computing, Privacy Preserving

Hebei University of Technology — **Tianjin, China**
B.E. in Electronic Information Engineering — *Sept. 2010–June 2014*

- GPA: 3.81/4.0 Ranking: 1/57
- Outstanding Graduation Thesis
- Merit Student (2011-2012)
- The First Prize Scholarship (2011-2014, Four times)

Research Experience

Social-Aware Private-Preserving Recommender System

Mar. 2016–Present

- Designed a privacy-preserving collaborative filtering mechanism to protect users' rating history, adopting the social information to achieve a fine-grained privacy protection.
- Used the differential privacy method to provide a rigorous 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

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.

Influential User Mining in Online Social Networks

Mar. 2015–May 2015

- Implemented six influence measurement algorithms, e.g., Degree, PageRank, Betweenness Centrality, etc.
- Tested and compared algorithms on real-world social network datasets: Facebook, Twitter, E-mail network.
- Designed an interactive interface, using D3.js and Sigma.js.
- Responsibilities:
  - Implemented the algorithms via C++

Resource Allocation Methods in Wireless Sensor Networks

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 slots in IEEE 802.15.4 networks.

Internet of Things Based Health Monitoring System
National Undergraduate Training Programs for Innovation and Entrepreneurship *2013–2014*

- Implemented a sensor network to collect patients' healthy data, including heartbeat, blood pressure, and oxyhemoglobin saturation.
- Analyzed the collected data by the embedded gateway.
- Implemented an Android APP for real-time visualization.
- Responsibilities:
  - Systematic Framework Design
  - Developed the Android APP

Publications

- **S. Yan**, S. Pan, W.-T. Zhu, and K. Chen, **"DynaEgo: Privacy-preserving collaborative filtering recommender system based on social-aware differential privacy,"** 18th International Conference on Information and Communications Security (ICICS'16). (Under Review)
- S. Pan, Y. Zheng, **S. Yan**, and W.-T. Zhu, **"PMDA: Privacy-preserving multi-functional data aggregation without TTP in smart grid,"** 18th International Conference on Information and Communications Security (ICICS'16). (Under Review)
- S. Pan, **S. Yan**, and W.-T. Zhu, **"P2CABI: Privacy-preserving cloud aided biometric identification,"** *Computers & Security*, Elsevier. (Under Review)
- **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.

Honors & Awards

- Third Prize of 1st Tianjin Undergraduate IoT Innovation and Application Design Competition *Dec. 2013*
- Honorable Mention of the Finals of 8th Tianjin Undergraduate MCU Application Design Competition *May 2013*
- Third Prize of Tianjin Undergraduate Physics Competition *2012*

Computer Skills

- Programming Language: C/C++, Python, MATLAB
- Operating Systems: Windows, Linux (Ubuntu)
- Solid knowledge of networks, social network mining, cryptography, communication technology.
- Familiar with machine learning, data analysis algorithms.

Standard Tests

- **TOEFL iBT:** 102
- **GRE:** V: 157; Q: 168; AW: 4.0