

# 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

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- **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

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- 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

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- 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

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- **TOEFL iBT:** 107
- **GRE:** V: 157; Q: 168; AW: 4.0