Curriculum Vitae

Xinshu Ma

Personal Data

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Education

2017-present	**Master of Cyberspace Security**, College of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics (NUAA), China Supervisor: Prof. Zhe Liu
2013-2017	**Bachelor of Computer Science and Technology**, College of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics (NUAA), China GPA: 91/100, Ranking 1/100.

Selected Awards and Honours

Dec. 2017	Second Prize of Information Security and Countermeasures Contest
Oct. 2017	**First Class Freshman Scholarship of NUAA** (CNY 20,000, 1/190)
2017-2019	First Class Scholarship for Graduate Students of NUAA (CNY 10,000/year)
2017-2019	Graduate Student Scholarship (CNY 6,000/year)
Mar. 2017	**Third Prize of the Ministry of Industry and Information Technology Innovation Scholarship** (CNY 10,000)
Nov. 2016	National Encouragement Scholarship (CNY 5000)
Nov. 2015	**National Scholarship** (CNY 8000, 3/310)
2015-2017	First Class Scholarship of NUAA (CNY 3500)
Nov. 2014	Third Class Scholarship of NUAA (CNY 1500)

Publications and Patents

1 Xinshu Ma, Chunpeng Ge, Zhe Liu: Blockchain-enabled Privacy-preserving Internet of Vehicles with QoS guarantee (extended version). IEEE Transactions on Dependable and Secure Computing. **TDSC** 2020 (Under Review)

2 Chunpeng Ge, Xinshu Ma, Zhe Liu, Jinyue Xia: A Semi-autonomous Distributed Blockchain-based Framework for UAVs Communication Systems. Journal of Systems Architecture. **JSA** 2020.

3 Xinshu Ma, Chunpeng Ge, Zhe Liu: Blockchain-enabled Privacy-preserving Internet of Vehicles: Decentralized and Reputation-based Network Architecture. International Conference on Network and System Security. **NSS** 2019. Best Paper Award

4 Xinshu Ma, Xiaojun Zhu*, Bing Chen: Exact Algorithms for Maximizing Lifetime of WSNs Using Integer Linear Programming. IEEE Wireless Communications and Networking Conference. **WCNC**. 2017.

5 Xinshu Ma, Youwen Zhu*, Xingxin Li: An efficient and secure ridge regression outsourcing scheme in wearable devices. Computers & Electrical Engineering. **CEE** 2017, 63: 246-256.

+ PRC Patent Application No.: 201610659332.X, Publication No. :CN106131878A, A kind of data collection method for energy heterogeneous wireless sensor network, Xiaojun Zhu, Xinshu Ma and Jing Zhang, 2016.08.11

Research Experience

Jan-May 2019 | **Research Intern**,
Institute of Information Systems Technology and Design (ISTD)
Singapore University of Technology and Design (SUTD)
Supervisor: Prof. Pawel Szalachowski

- **Topic: Security Analysis of PoW Consensus algorithm**
- Provided **security analysis** of a novel **Proof of Work (PoW) consensus algorithm** named StrongChain (Usenix'19), utilizing the Matlab toolbox of **Markov Decision Process (MDP)** to **model the attack process** running on the Amazon EC2 and contributing to find the optimal **Selfish Mining Attack** Strategy, also simulating the optimal strategy in the Java blockchain simulator.

2016-2017 | **Undergraduate Research**,
Network and Information Security Laboratory
Nanjing University of Aeronautics and Astronautics (NUAA)
Supervisor: Prof. Youwen Zhu

- **Topic: Secure Ridge Regression Outsourcing Scheme**
- Conducted the **experiment of a ridge regression outsourcing scheme** (MATLAB) which used random vectors and dense matrices to perturb input dataset and regression output, provided the **theoretical analysis** and **wrote the paper**.

2015-2016 | **Undergraduate Research**,
Network and Information Security Laboratory
Nanjing University of Aeronautics and Astronautics (NUAA)
Supervisor: Prof. Xiaojun Zhu

- **Topic: Maximizing Lifetime of WSNs Using ILP**
- Conducted the **simulation experiment** (JAVA) of an exact algorithm proposed by Prof. Zhu that performs binary search over possible lifetimes, and uses **integer linear programming (ILP)** to check the feasibility of a candidate lifetime to obtain the maximum lifetime of a data gathering tree in **wireless sensor networks**. Besides, contributed to **collecting, processing and analyzing the simulation experimental results**, as well as **writing the draft**.

Languages Competenies

IELTS©: 7 (Listening:7.5; Reading:7.5; Writing: 6; Speaking:6.5)