

YI LIU

Research Interest: Security and Privacy & Federated Learning & Blockchain

EMAIL: 97liuyi@ieee.org

HOME PAGE: <https://niklausliu.github.io/>

GOOGLE SCHOLAR: [MyProfile](#)

EDUCATION

Heilongjiang University

B.E. in Network Engineering (Early Graduation Base On Academic Excellence)

Aug. 2016 - Sept. 2019

Advisor: Prof. Yi Wu

- GPA: 92.36/100; RANK: 1/176.

SUMMER SCHOOL

HIT International Summer School 2018: ARTIFICIAL INTELLIGENCE

[\[Certificate\]](#)

The Cornell, Maryland, Max Planck-SWS Pre-doctoral Research School 2019

[\[Certificate\]](#)

INTERNSHIPS

Nanyang Technological University

Visiting Student

Jan. 2019 - Mar. 2019

Advisor: Prof. Jun Zhao

- Title: Collecting and Analyzing Data from Users with Strong Privacy Protection.
- [Distributed machine learning system with local differential privacy.](#)

Southern University of Science and Technology

Research Assistant

Jul. 2019 - Present

Advisor: Prof. James J.Q. Yu

- Project: Security and privacy in the intelligent transportation systems (ITS).
- Paper: Privacy-preserving Traffic Flow Prediction: A Federated Learning Approach.
- Paper: Reliable and Efficient Traffic Flow Prediction for Internet of Vehicles using Blockchain Empowered Federated Learning.

Westlake University

Visiting Student

Dec. 2019 - Present

Advisor: Prof. Stan Z. Li, IEEE Fellow

- Project: Security and privacy in the computer vision (CV).

HONORS & SCHOLARSHIPS

The Stars of Self-improvement of Chinese College Students (Select 100 students in China) 2019

Best College Student - Technology Innovation Award from HLJU (10/7996) 2019

The 5th Heilongjiang Province “Internet +” College Innovation and Entrepreneurship Competition **Gold Award** 2019

First Prize of Heilongjiang Competition Area in “Challenge Cup” National College Student Curricular Academic Science and Technology Works Competition 2019

National Encouragement scholarship (Three times) 2019

First Prize of Excellent Undergraduate Scholarship from HLJU (Three times) 2019

First Prize of Outstanding Poor Student Scholarship from HLJU (Three times) 2019

Heilongjiang Province Excellent All-round Student from Heilongjiang Provincial Department of Education 2019

Best Excellent All-round Student from HLJU 2018

The 11th Heilongjiang Competition Area in “Challenge Cup” National College Student Business Plan Competition **Bronze Award** 2018

The 11th “Challenge Cup” National College Student Business Plan Competition **Gold Award** (10/2000+) 2018

First Prize of the 4th Heilongjiang Province “Internet +” College Innovation and Entrepreneurship Competition 2018

Second Prize of the Ninth National College Student Mathematics Competition (non-mathematics) 2017

Second Prize of Heilongjiang Competition Area in National University Mathematical Modeling Competition 2017

Second Prize of Northeastern Three Provinces Mathematical Modeling Competition 2017

PUBLICATIONS

JOURNAL

10. [IEEE TVT] [Yi Liu](#), Jiawen Kang, James J.Q. Yu. “Reliable and Efficient Traffic Flow Prediction for Internet of Vehicles using Blockchain Empowered Federated Learning.” *IEEE Transactions on Vehicular Technology*, (Coming soon..).
9. [IEEE IoTJ] [Yi Liu](#), Jiangtian Nie, Xuandi Li, Syed Hassan Ahmed, Wei Yang Bryan Lim, Chunyan Miao. “Federated Learning in the Sky: Aerial-Ground Air Quality Sensing Framework with UAV Swarms.” *IEEE Internet of Things Journal*, (Under View).
8. [IEEE IoTJ] [Yi Liu](#), James J.Q. Yu, Jiawen Kang, Niyato Dusit (Fellow, IEEE), Shuyu Zhang. “Privacy-preserving Traffic Flow Prediction: A Federated Learning Approach.” *IEEE Internet of Things Journal*, (**Minor Revision**).
7. [IEEE WCM] [Yi Liu](#), Jialiang Peng, Jiawen Kang, Iliyasu Abdullah, Niyato Dusit (Fellow, IEEE), Ahmed A. Abd El-Latif. “A Secure Federated Learning Framework for 5G Networks.” *IEEE Wireless Communications Magazine*, (**Major Revision**).
6. [IEEE IoTJ] [Yi Wu](#), [Yi Liu](#), Syed Hassan Ahmed, Jialiang Peng, Ahmed A. Abd El-Latif. “Dominant Dataset Selection Algorithms for Electricity Consumption Time-Series Data Analysis Based on Affine Transformation.” *IEEE Internet of Things Journal*, (**JCR Q1, Impact Factor = 9.515**), (doi:[10.1109/JIOT.2019.2946753](#)). [[pdf](#)]
5. [IEEE Access] Chenhan Zhang, James J.Q. Yu, [Yi Liu](#). “Spatial-Temporal Graph Attention Networks: A Deep Learning Approach for Traffic Forecasting.” *IEEE Access*, (**JCR Q1**), (doi:[10.1109/ACCESS.2019.2953888](#)). [[pdf](#)]

CONFERENCE

4. [ITSC’20] [Yi Liu](#), Shuyu Zhang, Chenhan Zhang, James J.Q. Yu. “FedGRU: Privacy-preserving Traffic Flow Prediction via Federated Learning.” *The 23rd IEEE International Conference on Intelligent Transportation Systems 2020*, (under view).
3. [ICPADS’19] [Yi Liu](#), Jialiang Peng, James J.Q. Yu, [Yi Wu](#). “PPGAN: Privacy-preserving Generative Adversarial Network.” *IEEE 25th International Conference on Parallel and Distributed Systems*, (CCF-C, doi:[10.1109/ICPADS47876.2019.00150](#)). [[pdf](#)]
2. [BDET’18] [Yi Liu](#), Jiawen Peng, Zhihao Yu. “Big Data Platform Architecture under The Background of Financial Technology: In The Insurance Industry As An Example.” *2018 International Conference on Big Data Engineering and Technology*, 2018. [[pdf](#)]
1. [ICCTEC’17] [Yi Liu](#), [Yi Wu](#). “Decision tree model in the diagnosis of breast cancer.” *2017 IEEE International Conference on Computer Technology, Electronics and Communication (ICCTEC)*, 2017. [[pdf](#)]

GRANTS

[Leader] [Yi Liu](#), Yufeng Liu*, [Yi Wu](#). “ChinesePai - Intelligent Language Learning Platform.” *The Ministry of Education of China and the School of Entrepreneurship Education of HLJU (Grant NO.201910212133, 50000RMB)*, **National Project**.

[Leader] [Yi Liu](#), [Yi Wu](#)*. “Campus Intelligent Service Chat Robot Based on Russian Corpus.” *The Ministry of Education of China and the School of Entrepreneurship Education of HLJU (Grant NO.201810212005, 10000RMB)*, **National Project**.

INDUSTRIAL EXPERIENCES

Heilongjiang Provincial - Office of Central Cyberspace Affairs Commission 2018 - 2019
Research Assistant Advisor: Prof. Yi Wu & Jialiang Peng

- Project: [Heilongjiang Province Informatization Development Level Evaluation Report](#).

Heilongjiang Province ChinesePai Education Technology Co., Ltd. 2019 - Present
CEO Founder: Yi Liu

- Company: [ChinesePai is committed to creating a one-on-one online learning Chinese intelligent community for teenagers!](#)

ACADEMIC SERVICES

- Lead Guest Editors of the special issues Data Mining of the [International Journal on Data Science and Technology](#)
- IEEE Access Reviewer
- Teaching Assistant at HLJU: [Machine Learning](#)

MENTORING, LEADERSHIP & ACTIVITIES

- IEEE/CCF Student Member and China Computer Federation (CCF) Propagandist
- **Google TensorFlow User Group (TFUG)** Harbin City Leader

REFERENCES

Prof. Yi Wu (advisor)
School of Data Science and Technology
Heilongjiang University
[Email: 1995050@hlju.edu.cn](mailto:1995050@hlju.edu.cn)

Prof. Jialiang Peng (advisor)
School of Data Science and Technology
Heilongjiang University
[Email: Pengjialiang@hlju.edu.cn](mailto:Pengjialiang@hlju.edu.cn)

[Prof. James J.Q. Yu](#)
Department of Computer Science and Engineering & Department of Electrical and Electronic Engineering
Southern University of Science and Technology & The University of Hong Kong
[Email: yujq3@sustech.edu.cn](mailto:yujq3@sustech.edu.cn)