Xiaofeng Shi

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Research Interests

Computer Networks, Cellular Network, Learning Augmented Systems, Wireless Sensing

Education

05/2018 - now **University of California, Santa Cruz**, USA
Ph.D. in Computer Engineering
Advisor: Chen Qian

09/2014 - 06/2017 **Nanjing University**, China
Master in Computer Technology
Advisor: Furao Shen

09/2010 - 06/2014 **Nanjing University**, China
B.S. in Computer Science and Technology,
Advisor: Furao Shen

Conference Publications

1. [**CCS'21**] **Xiaofeng Shi**, Shouqian Shi, Minmei Wang, Jonne Kaunisto and Chen Qian. On-device Certificate Revocation Checking with Small Memory and Low Latency, *Accepted*.
2. [**INFOCOM'20**] Junjie Xie, Deke Guo, **Xiaofeng Shi**, Haofan Cai, Chen Qian and Honghui Chen. A Fast Hybrid Data Sharing Framework for Hierarchical Mobile Edge Computing, *IEEE International Conference on Computer Communications*, 2020.
3. [**INFOCOM'20**] Ge Wang, Chen Qian, Kaiyan Cui, **Xiaofeng Shi**, Han Ding, Wei Xi, Jizhong Zhao and Jinsong Han. A Universal Method to Combat Multipaths for RFID Sensing, *IEEE International Conference on Computer Communications*, 2020.
4. [**ICNP'19**] **Xiaofeng Shi**, Minmei Wang, Ge Wang, Baiwen Huang, Haofan Cai, Junjie Xie and Chen Qian. TagAttention: Mobile Object Tracing without Object Appearance Information by Vision-RFID Fusion, *IEEE International Conference on Network Protocols*, 2019.
5. [**ICNP'19**] Haofan Cai, Ge Wang, **Xiaofeng Shi**, Junjie Xie, Minmei Wang and Chen Qian. When Tags 'Read' Each Other: Enabling Low-cost and Convenient Tag Mutual Identification, *IEEE International Conference on Network Protocols*, 2019.
6. [**IJCNN'16**] **Xiaofeng Shi**, Furao Shen, Jinxi Zhao. Image segmentation based on Prototypes Extraction and Merging of clusters in multiple spaces. *IEEE International Joint Conference on Neural Networks (IJCNN)*, 2016.
7. [**IJCNN'15**] **Xiaofeng Shi**, Guoqiang Xu, Furao Shen, Jinxi Zhao. Solving the data imbalance problem of P300 detection via random under-sampling bagging SVMs. *IEEE International Joint Conference on Neural Networks (IJCNN)*, 2015.

Journal Publications

1. [**Pending**] Ge Wang, **Xiaofeng Shi**, Haofan Cai, Chen Qian, Han Ding, Wei Xi, et al. TagAttention: Mobile Object Tracing With Zero Appearance Knowledge by Vision-RFID Fusion, *IEEE/ACM Transactions on Networking*, In submission.

2. [**TON'21**] **Xiaofeng Shi**, Haofan Cai, Minmei Wang, Ge Wang, Baiwen Huang, Junjie Xie, Chen Qian. TagAttention: Mobile Object Tracing With Zero Appearance Knowledge by Vision-RFID Fusion, *IEEE/ACM Transactions on Networking*, 2021.
3. [**TON'21**] Junjie Xie, Deke Guo, **Xiaofeng Shi**, Haofan Cai, Chen Qian, Honghui Chen. HDS: A Fast Hybrid Data Location Service for Hierarchical Mobile Edge Computing, *IEEE/ACM Transactions on Networking*, 2021.
4. [**TNNLS'18**] Youlu Xing, **Xiaofeng Shi**, Furao Shen, Jinxi Zhao, Jingxi Pan, Ah-Hwee Tan. Perception Coordination Network: A Neuro Framework for Multimodal Concept Acquisition and Binding, *IEEE Transactions on Neural Networks and Learning Systems*, 30(4), 1104-1118.
5. [**Neural Networks'16**] Youlu Xing, **Xiaofeng Shi**, Furao Shen, Ke Zhou, Jinxi Zhao. A Self-Organizing Incremental Neural Network based on local distribution learning, *Neural Networks*, 84, 143-160.

Workshops

1. [**HotNets'20**] Chen Qian, Shouqian Shi, **Xiaofeng Shi**, Minmei Wang. Don't Work on Individual Data Plane Algorithms. Put Them Together!, *HotNets 2020: Nineteenth ACM Workshop on Hot Topics in Networks*, accepted.

Honors and Awards

- Student Travel Award of INFOCOM 2020
- Student Travel Award of ICNP 2019
- Student Travel Award of HotMobile 2019
- UCSC Chancellor's Fellowship 2018
- Excellent Graduate Student of NJU (for 10% students, 2016 & 2017)
- Tung OOCL Scholarship (for 3% students, 2016)
- First Prizes for Graduate Academic Scholarship of Nanjing University (2015 & 2016)
- Second Prize in National College Competition on Internet of Things East China Division, China, 2015
- Top Prize in Science and Technology Works Exhibition of Nanjing University, 2014
- Second Prize in National Graduate Contest on Smart-City Technology and Creative Design, China, 2014

Research Experience

Graduate Student Researcher 2020–current
AT & T Labs – Research, UC Santa Cruz CA
Advisor: Dr. Jia Wang (AT & T Research), Prof. Chen Qian (UCSC)

- Designed a learning-based reactive troubleshooting model for service issue diagnosis in cellular services. Proposed a spatiotemporal deep learning modeling framework for local cellular networking issue detection.

Graduate Student Researcher 2019–2020
University of California Santa Cruz CA
Advisor: Prof. Chen Qian

- Designed and implemented TinyCR, an on-device certificate revocation checking protocol for IoT. The protocol supports real-time updating the of the certificate revocation list and requires smaller memory than state-of-the-art.

Graduate Student Researcher 2018–2019
University of California Santa Cruz CA
Advisor: Prof. Chen Qian

• Designed a fusion system of RGB-D video and RFID signals through visual attention mechanism for accurate object tracing in augmented reality.

Lab Assistant 2017–2018
Emory University GA
Advisor: Prof. Xiaofeng Yang

• Implemented and trained a patch-based 3D Fully Convolutional Network (FCN) to segment the tumor regions from 3D multimodal MRI brain scans.

Research Assistant 2014–2016
Nanjing University China
Advisor: Prof. Furao Shen

• Designed the Perception Coordination Network (PCN) to simulate the concept acquisition and fusion of different senses in the brain.

• Proposed and implemented the SOIG (Self-organizing Incremental Graph) model to realize lifelong and open-ended instance learning.

• Introduced local matrix learning based on Self-organizing Incremental Neural Network to obtain a concise representation of the data distribution and generate effective clustering results for online data.

• Improved the detection accuracy of P300 potential by solving the data imbalance problem in EEG data.

Professional Activities

Reviewer:
IFIP Networking '21; *INFOCOM* '21; *ICNP* '21; *Sigmetrics* '21; *ICDCS* '20; *INFOCOM* '20; *Mobicom* '20; *IFIP Networking* '20; *ACM Transactions on Sensor Networks*; *ICDCS* '19; *IFIP Networking* '19; *INFOCOM* '19.

Talks & Presentations

1. **TagAttention: Mobile Object Tracing without Object Appearance Information by Vision-RFID Fusion**, on IEEE ICNP conference, Chicago, USA, 2019;
2. **Solving the Data Imbalance Problem of P300 Detection via Random Under-Sampling Bagging SVMs**, on IEEE IJCNN conference, Killarney, Ireland, 2015;
3. **Improved Manifold Learning with competitive Hebbian rule**, on IEEE IJCNN conference, Killarney, Ireland, 2015;
4. **L3-SVM: A Lifelong Learning Method for SVM**, on IEEE IJCNN conference, Killarney, Ireland, 2015;