Chao Wang

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Research Interests

Wireless Sensing, Machine/Deep Learning, IoT Security

Education

Sep. 2019 - Present

Zhejiang University - *Ph.D. Candidate of Computer Science and Technology (Supervised by Prof. Feng Lin)*

Sep. 2015 - Jun. 2019

Zhejiang University - *B.S. of Information Science and Electrical Engineering*

Publications

[MobiCom'22] **mmEve: Eavesdropping on Smartphone's Earpiece via COTS mmWave Device**

Chao Wang, *Feng Lin, Tiantian Liu, Kaidi Zheng, Zhibo Wang, Zhengxiong Li, Ming-chun Huang, Wenyao Xu, Kui Ren. Proceedings of the 28th Annual International Conference on Mobile Computing And Networking. 2022. (Acceptance rate: 17.8%)*

[UbiComp'22] **Through-wall Word Detection of Human Speech via Commercial mmWave Devices**

Chao Wang, *Feng Lin, Zhongjie Ba, Fan Zhang, Wenyao Xu, Kui Ren. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies 6.2 (2022): 1-26.*

[INFOCOM'22] **mmPhone: Acoustic Eavesdropping on Loudspeakers via mmWave-characterized Piezoelectric Effect**

Chao Wang, *Feng Lin, Tiantian Liu, Ziwei Liu, Yijie Shen, Zhongjie Ba, Li Lu, Wenyao Xu, Kui Ren. IEEE INFOCOM 2022-IEEE Conference on Computer Communications. (Acceptance rate: 19.9%)*

[UbiComp'23] **CamRadar: Hidden Camera Detection Leveraging Amplitude-modulated Sensor Images Embedded in Electromagnetic Emanations**

Ziwei Liu, Feng Lin, ***Chao Wang****, Yijie Shen, Zhongjie Ba, Li Lu, Wenyao Xu, Kui Ren. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies 6.4 (2023): 1-25.*

[Oakland'23] **Beware of Your Loudspeaker as Backdoor of Magnetic Attack for Malicious Command Injection**

Tiantian Liu, Feng Lin, Zhangsen Wang, ***Chao Wang****, Zhongjie Ba, Li Lu, Wenyao Xu, Kui Ren. IEEE Symposium on Security and Privacy (SP), 2023. (Accepted)*

[TDSC'23] **MotoPrint: Reconfigurable Vibration Motor Fingerprint via Homologous Signals Learning**

*Yijie Shen, Feng Lin, **Chao Wang**, Tiantian Liu, Zhongjie Ba, Li Lu, Wenyao Xu, Kui Ren. IEEE Transactions On Dependable And Secure Computing, 2023.*

[SenSys'21] **Wavoice: A Noise-resistant Multi-modal Speech Recognition System Fusing mmWave and Audio Signals (Best Paper Award Nomination)**

*Tiantian Liu, Ming Gao, Feng Lin, **Chao Wang**, Zhongjie Ba, Jinsong Han, Wenyao Xu, Kui Ren. Proceedings of the 19th ACM Conference on Embedded Networked Sensor Systems. 2021. (Acceptance rate: 25/139=18.0%)*

[IoTJ'21] **G2F: A Secure User Authentication for Rapid Smart Home IoT Management**

Hongwei Luo, **Chao Wang***, Hao Luo, Fan Zhang, Feng Lin, Guoai Xu. IEEE Internet of Things Journal 8.13 (2021): 10884-10895. (* Co-first author)*

Honors and Awards

2022 Huawei Elite Scholarship

2022 Student Grant of IEEE INFOCOM 2022

2022 Outstanding Graduate Student of the year [2021-2022, Zhejiang University]

2021 Outstanding Graduate Student of the Year [2020-2021, Zhejiang University]

2020 National Network Technology Challenge in Computer Competition **[1st Prize Winner, Top 1.0%, 7 out of 686]**

2019 National Integrated Circuit Innovation Competition **[1st Prize Winner, Top 3.2%, 15 out of 468]**

2019 The 24th Undergraduate Electronics Design Contest **[2nd Prize Winner of Zhejiang University]**

Granted Patents

Method and device for acquiring sounding motion characteristic waveforms of multiple sounders, and electronic equipment. Feng Lin, Chao Wang, Wenyao Xu, Kui Ren. CN113257271B.

Semantic information acquisition method and device, electronic equipment and storage medium. Feng Lin, Chao Wang, Wenyao Xu, Kui Ren. CN113221722B.

Centralized authentication system of Internet of Things equipment based on U2F physical token. Feng Lin, Chao Wang, Hao Luo, Fan Zhang, Jinsong Han, Wenyao Xu, Kui Ren. CN111585771B.

Multimodal speech recognition method and system, and computer-readable storage medium. Feng Lin, Tiantian Liu, Ming Gao, Chao Wang, Zhongjie Ba, Jinsong Han, Wenyao Xu, Kui Ren. U.S. Patent Application No. 17/684,958.

Professional Services

Shadow Program Committee: ACM SenSys [2022]

Reviewer: IEEE Transactions on Services Computing [2022]

Presentations

Conference Talk [MobiCom'22] Oct. 2022

mmEve: Eavesdropping on Smartphone's Earpiece via COTS mmWave Device

Conference Talk [UbiComp'22] Sep. 2022

Wavesdropper: Through-wall Word Detection of Human Speech via Commercial mmWave Devices

Conference Talk [INFOCOM'22] May. 2022

mmPhone: Acoustic Eavesdropping on Loudspeakers via mmWave-characterized Piezoelectric Effect

Skills

Software: Machine&Deep Learning (Python), Signal Processing (MATLAB), Writing (LaTeX)

Hardware: PCB Design (Altium Designer/KiCAD), FPGA (Verilog)