

# Chao Wang

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## Research Interests

Wireless Sensing, Machine/Deep Learning, Internet of Things

## 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.E. 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, Wen Yao 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, Wen Yao 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, Wen Yao Xu, Kui Ren. CN113257271B.

**Semantic information acquisition method and device, electronic equipment and storage medium.** Feng Lin, Chao Wang, Wen Yao 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, Wen Yao 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, Wen Yao 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]

## Skills

**Programming:** Python, MATLAB, C/C++, Lua, Verilog, LaTeX

**PCB Design:** Altium Designer, KiCAD

## 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