YE TIAN

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EDUCATION

USTC, College of Computer Science and Technology · *September 2021 - Now*
*National Scholarship **(ranking: 1%)**, Academic First-class scholarship.* · **M.S.**
Northwest A&F University, College of Information Engineering · *August 2017 - June 2021*
*Lixin Tang Scholarship **(ranking: 0.2%)**, Outstanding Graduate Honor.* · **B.E.**

RESEARCH EXPERIENCE

Sensing, interaction, mobile and ubiquitous computing. *Reasearch Assistant*
Supervisor: IEEE/ACM Fellow Prof. Xiang-Yang Li · Sept. 2021 - Present

· **Lip-reading Authentication and Interaction Systems**.
We designed the first lip-reading authentication system that uses Wi-Fi backscatter technique and does not rely on fixed passwords, which was published in **IEEE/ACM IWQoS 2023**. This study collaborated with the Editor of IMWUT, Prof. Chenren Xu (Peking University).

We further investigated the semantic information expressed by lip-reading actions and designed the first wireless signal-based semantic-level silent lip-reading interface to help those disadvantaged groups with hearing loss and speech impairment to communicate better. It is under revision on **ACM IMWUT**.

· **Interactive Systems based on Mobile and Wearable Devices**.
Combining computer vision and deep learning techniques, we designed a leading gesture interaction system deployed on smartwatches. It combines the dual benefits of visual information and IMU signals, which was published at **IEEE INFOCOM 2022**. This study collaborated with the *IEEE Fellow* Prof. Yusheng Ji (National Institute of Informatics, Japan).

We designed an interactive system for communication and localization on mobile devices using the resonance properties of MEMS gyroscopes and variations in Wi-Fi signal strength. These studies were submitted to the top conferences in mobile computing and networking **MobiCom**, **INFOCOM 2024**.

Human-centered computing, decision-making and control. *Research Assistant*
Supervisors: Prof. Yong Deng and Prof. Bingyi Kang · Oct. 2018 - Apr. 2021

Based on fuzzy mathematics and Dempster-Shafer theory, I proposed a novel fuzzy clustering algorithm and a reliability assessment mechanism for multi-sensor data, which shows good performance in some practical problems such as pattern recognition. I have studied uncertain information decision-making models based on likelihood functions and further proposed a group decision-making algorithm. These studies are published in some top journals, such as **Applied Soft Computing** and **IEEE Transactions on Fuzzy Systems**.

I collaborated with the Fellow of the Royal Society of Canada Prof. Witold Pedrycz, an *IEEE Life Fellow*, to design a generalized best-worst method decision model. It is under revision on the top journal in this field, **Expert Systems With Applications**.

SELECTED PUBLICATIONS

Corresponding authors are marked with *. For a complete list, please refer to my [**Google Scholar**].

1. **Ye Tian**, Hao Zhou*, Haohua Du, Chenren Xu, Jiahui Hou, Dong Ren and Xiang-Yang Li*. Back-Lip: Passphrase-Independent Lip-reading User Authentication with Backscatter Signals. IEEE/ACM 31th International Symposium on Quality of Service (**IWQoS 2023**), pp. 1-10. IEEE, 2023.

2. Kaiwen Guo, Hao Zhou*, **Ye Tian**, Wangqiu Zhou, Yusheng Ji and Xiang-Yang Li*. Mudra: A Multi-Modal Smartwatch Interactive System with Hand Gesture Recognition and User Identification. IEEE International Conference on Computer Communications (**INFOCOM 2022**), pp. 100-109. IEEE, 2022.

3. **Ye Tian**, Xiangjun Mi, Huizi Cui, Pengdan Zhang and Bingyi Kang*. Using Z-number to measure the reliability of new information fusion method and its application in pattern recognition. **Applied Soft Computing (IF 8.263)** 111 (2021), 107658.

4. **Ye Tian**, Xiangjun Mi, Yunpeng Ji and Bingyi Kang*. Z^E-numbers: a new extended Z-numbers and its application on multiple attribute group decision making. **Engineering Applications of Artificial Intelligence (IF 7.802)** 101 (2021), 104225.

5. **Ye Tian**, Lili Liu, Xiangjun Mi and Bingyi Kang*. ZSLF: A new soft likelihood function based on Z-numbers and its application in expert decision system. **IEEE Transactions on Fuzzy Systems (IF 12.253)** 29, 8 (2020), 2283–2295.

6. **Ye Tian** and Bingyi Kang*. A modified method of generating Z-number based on OWA weights and maximum entropy. **Soft Computing (IF 4.1)** 24, 20 (2020), 15841–15852.

Some papers are under revision or review.

1. **Ye Tian**, the first author. **ACM IMWUT**, **ESWA**, under revision.
2. **Ye Tian**, co-author. **ACM MobiCom**, **IEEE INFOCOM**, under review.

Patents. My supervisor Prof. Li is the first inventor and I am the second inventor.

1. A user lip reading authentication method and device based on reverse scattering signal.
2. Finger writing content and identification method and device based on backscatter signal.
3. Legitimacy verification method and legality verification device of camera device.
4. Legality verification method and legality verification device of wireless equipment.

SELECTED HONORS AND AWARDS

National Scholarship (**ranking: 1%**),	-2023
Academic First-class scholarship,	-2023
Huawei Scholarship (**ranking: 2%**),	-2022
Outstanding Student Leader in Graduate Student Union,	-2022/2021
Outstanding Graduates of the Whole University (**ranking: 2%**),	-2021
International Mathematical Contest in Modeling - Honorable Mention Award,	-2021
Lixin Tang Scholarship (**ranking: 0.2%**)	-2020
National Encouragement Scholarship (**ranking: 3%**),	-2020,2019,2018
First Class Scholarship,	-2020,2019,2018
One of the 100 Campus Stars/ Top Ten Scientific Research Stars (**ranking: 0.5%**),	-2020
Outstanding Students and Student Leader,	-2020,2019,2018
Forestry Innovation and Entrepreneurship Competition - National Semi-Finalist Award,	-2020
Outstanding Representative of Innovation and Entrepreneurship, (**ranking: 0.2%**)	-2020
College Students Three Innovation Challenge - Provincial Second Prize,	-2019
"Internet +" College Student Competition - Gold Award in our University,	-2019
Outstanding Representative of Social Practice,	-2018

ACADEMIC SERVICE AND VOLUNTEER ACTIVITIES

Volunteer - National Forum for CS Department Chairs/Deans in Colleges and Universities	2023
Session Chair - IEEE/ACM IWQoS 2023 / IEEE Bigcom 2022	2023/2022
Teaching Assistant - Combinatorial Mathematics	2023/2022
Graduate Student Union Member, Class Secretary	2021-Now
Tang Lixin Scholarship "Xinji Society" Vice President	2020-2021
Class Monitor, Class teacher's Student Assistant	2017/2018-2021
Volunteer - Rural Survey and Research Activities in Poor Areas of Northwest China	2018