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.* **GPA 3.40/4.3 M.S.**
Northwest A&F University, College of Information Engineering ***August 2017 - June 2021***
*Lixin Tang Scholarship (**ranking: 0.2%**), Outstanding Graduate Honor.* **GPA 3.51/4.0 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 an authentication system based on user lip-reading ***(IWQoS 2023)***. It uses Wi-Fi backscatter technique to recognize the action of user lip-reading, which is contactless and password-independent. It has the advantages of robust anti-spoofing attacks and privacy protection. This study was in collaboration with the Editor of IMWUT, *Prof. Chenren Xu (Peking University).*

Recently, we focused on the application of interaction technologies to smart health. We designed a **silent speech interface** that can help those with hearing loss and speech impairments to easily communicate by recognizing what they lip-read. It is the first semantic-level wireless-based SSI and achieves comparable performance to SOTA visual-based SSI. This study is under revision for ***IMWUT 2023***.

· **Gesture Interaction Mobile System on Wearable Devices**.
Collaborate with IEEE Fellow Prof. Yusheng Ji (National Institute of Informatics, Japan).
Utilizing SOTA experience in Computer Vision and Deep Learning techniques, we designed a **gesture interaction system** deployed on smartwatches. It combines **visual** and **IMU** signals to recognize user gestures for more convenient and robust interactions (***INFOCOM 2022***).

Information fusion, human-centered computing and decision making. *Research assistant*
Supervisors: Prof. Yong Deng and Prof. Bingyi Kang Oct. 2018 - Apr. 2021

· **Multi-sensor information fusion methods**.
Based on fuzzy mathematics and Dempster-Shafer theory, we proposed fuzzy clustering algorithms and reliability assessment mechanisms for multi-sensor data, which have important applications to some practical problems such as pattern recognition. Related studies have been published in some top journals, such as ***Applied Soft Computing*** and ***ISA transactions***.

· **Decision-making models based on uncertain information**.
Collaborate with IEEE Life Fellow Prof. Witold Pedrycz (Fellow of the Royal Society of Canada).
We study human-centered decision models and focus on how to make optimal decisions based on uncertain data. We proposed a likelihood function-based decision model, ZSLF ***(IEEE Transactions on Fuzzy Systems)***, and design a multi-attribute group decision making method that considers the preference of decision makers ***(EAAI)***. We propose a generalized best-worst method decision model, which is under revision by ***Expert Systems with Applications***, a top journal in the field.

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. **Ye Tian**, Chao Gu, Shanyue Wang, Junyang Zhang, Haohua Du, Jiahui Hou and Xiang-Yang Li*. Lip-Siri: A Semantic-level Silent Speech Interface with Wi-Fi Backscatter Signals. ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT 2023**), under revision.
3. Junyang Zhang, Jiahui Hou*, **Ye Tian** and Xiang-Yang Li. WordWhisper: Exploiting Real-time, Hardware-dependent IoT Communication against Eavesdropping. The 30th Annual International Conference on Mobile Computing and Networking (**MobiCom 2024**), under review.
4. **Ye Tian**, Aozhuo Jia, Ruolan Cheng, Bingyi Kang* and Witold Pedrycz*. GBWM: A generalized best-worst decision-making method based on Z-numbers. Expert Systems With Applications (**ESWA 2023**), under revision.
5. 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.
6. **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.
7. **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.
8. **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.

***** Four patents are under review, my advisor 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%)**, 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%**), 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