Tongnian Wang

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Education

The University of Texas at San Antonio
Ph.D. in Information Technology   *2021-2025 (expected)*
 – GPA: 3.94
 – Supervisors: Dr. Yuanxiong Guo and Dr. Kim-Kwang Raymond Choo

University of Florida
M.S. in Electrical & Computer Engineering   *2019-2021*
 – GPA: 3.85

Wuhan University of Science and Technology
B.Eng. in Electronic & Information Engineering   *2015-2019*

Research Interests

Healthcare IS, Responsible AI, Machine Learning, Biomedical Informatics

Publications

Journal Publications

[J1] Analyzing the Impact of Personalization on Fairness in Federated Learning for Healthcare.
Tongnian Wang, Kai Zhang, Jiannan Cai, Yanmin Gong, Kim-Kwang Raymond Choo, and Yuanxiong Guo
Journal of Healthcare Informatics Research (JHIR), 2024. *(Impact Factor: 4.3)*

[J2] Applications of Federated Learning in Mobile Health: Scoping Review.
Tongnian Wang, Yan Du, Yanmin Gong, Kim-Kwang Raymond Choo, and Yuanxiong Guo
Journal of Medical Internet Research (JMIR), 2023. *(Impact Factor: 7.4)*

Conference Proceedings

[P1] Enabling Privacy-Preserving Prediction for Length of Stay in ICU — A Multimodal Federated Learning-based Approach.
Tongnian Wang, Yuanxiong Guo, Kim-Kwang Raymond Choo
*In Proceedings of the 31st European Conference on Information Systems, **ECIS 2023**.*

[P2] Analyzing the Impact of Personalization on Fairness in Federated Learning for Healthcare *(Short)*.
Tongnian Wang, Kai Zhang, Jiannan Cai, Yanmin Gong, Kim-Kwang Raymond Choo, and Yuanxiong Guo
*In Proceedings of the 11th IEEE International Conference on Healthcare Informatics, **ICHI 2023**.*

[P3] UTSA-NLP at RadSum23: Multi-modal Retrieval-Based Chest X-Ray Report Summarization.
Tongnian Wang, Xingmeng Zhao, Anthony Rios
*In Proceedings of the 22nd Workshop on Biomedical Language Processing (BioNLP), **ACL 2023**.*

[P4] BabyStories: Can Reinforcement Learning Teach Baby Language Models to Write Better Stories?
Xingmeng Zhao, **Tongnian Wang**, Sheri Osborn, Anthony Rios
*In Proceedings of the BabyLM Challenge at the 27th Conference on Computational Natural Language Learning, **CoNLL 2023***.

Under Review & In Preparation

[R1] Improving Expert Radiology Report Summarization by Prompting Large Language Models with a Layperson Summary.
Xingmeng Zhao, **Tongnian Wang**, Anthony Rios
*Under review: **The 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP).***

[R2] Online Client Scheduling and Resource Allocation for Efficient Federated Edge Learning.
Zhidong Gao, Zhenxiao Zhang, Yu Zhang, **Tongnian Wang**, Yanmin Gong, Yuanxiong Guo
*Under review: **IEEE Transactions on Wireless Communications.***

[R3] FairPFL: Mitigating Health Disparities with Fairness-Aware Personalization in Federated Learning.
Tongnian Wang, Yuanxiong Guo, Kim-Kwang Raymond Choo, Yanmin Gong
*Soon to be submitted to: **Decision Support Systems (DSS).***

[R4] Personalized Blood Glucose Level Predictions and Dysglycemia Interventions.
Tongnian Wang, Yuanxiong Guo, Kim-Kwang Raymond Choo, Yanmin Gong, Yan Du
*Work in progress. Target at: **Information Systems Research (ISR).***

[R5] Federated Learning for Enhancing Large Language Models in Personalized Healthcare.
Early-stage work in progress.

Presentations & Talks

"Mitigating Health Disparities with Fairness-Aware Personalization in Federated Learning"
– AMCIS 2024, Salt Lake City, UT 2024

"Analyzing the Impact of Personalization on Fairness in Federated Learning for Healthcare"
– IEEE International Conference on Healthcare Informatics (*ICHI*), Houston, TX 2023

"Enabling Privacy-Preserving Prediction for Length of Stay in ICU — A Multimodal Federated-Learning-based Approach"
– The European Conference on Information Systems (*ECIS*), Kristiansand, Norway 2023
– 2023 INFORMS Annual Meeting, Phoenix, AZ 2023
– SURF Conference, San Antonio, TX 2023

"UTSA-NLP at RadSum23: Multi-modal Retrieval-Based Chest X-Ray Report Summarization"
– Annual Meeting of the Association for Computational Linguistics (*ACL*), Toronto, Canada 2023
– Los Datos Conference, San Antonio, TX 2023

Teaching Experiences

Instructor, **IS 2053** *Programming Languages I with Scripting*, UTSA Alvarez College of Business

– Spring 2024, 3.81/5.00 (Class size: 34, in-person)
– Spring 2025, Scheduled to teach (in-person)

Instructor, **IS 1413** *Excel for Business Information Systems*, UTSA Alvarez College of Business

– Fall 2024, Scheduled to teach (online)

AWARDS & HONORS

2024	**Ph.D. Student of the Year Award ($1000)**, UTSA Alvarez College of Business
2023, 2024	**Ph.D. Excellence Fund Awards ($1500)**, UTSA Alvarez College of Business
2023, 2024	**Graduate School Professional Development Awards ($750)**, UTSA
2019-2021	**Achievement Award Scholarship ($1500)**, UF Herbert Wertheim College of Engineering
2019	**Outstanding Undergraduate Student Award**, WUST, China
2016-2018	**Top Grade Scholarship**, WUST, China

PROFESSIONAL SERVICES & ACTIVITIES

REVIEWER

2023-2024	IEEE International Conference on Distributed Computing Systems (ICDCS)
	ACM Transactions on Knowledge Discovery from Data
	Journal of Medical Internet Research (JMIR)
	JMIR Journals: Public Health and Surveillance, Medical Informatics, Mental Health, Formative Research, AI
	Operations Research for Health Care

MEMBERSHIP

2023-now	Association for Information Systems (AIS), INFORMS, IEEE

SKILLS & MISCELLANY

Computer Languages: Python, R, Java, Git, LaTex.
Databases: MySQL, PostgreSQL.
Data Science: Pandas, SciPy, Seaborn, Matplotlib.
Machine Learning: Pytorch, TensorFlow, Keras, Scikit-learn.
Natural Language Processing: NLTK, Hugging Face Transformers.
Systems/Hardware: Ubuntu, GPU (Nvidia), CUDA.
Hobbies: Tennis, Pickleball, Hiking, Road trip, Piano.

REFERENCES

Yuanxiong Guo	Kim-Kwang Raymond Choo	Charles Zhechao Liu
Associate Professor	Professor	Interim Department Chair, Professor
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