Xuyu Wang, Ph.D.

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Research Interests

Wireless sensing, wireless security, smart health, indoor localization, RF fingerprinting, Internet of Things (IoT), edge AI, trustworthy AI, and generative AI.

Highlights

Research

- Established an internationally visible research lab at FIU at the intersection of wireless sensing, wireless security, smart health, and trustworthy AI, resulting in 63 publications in leading venues, including top-tier conferences and journals such as IEEE INFOCOM (5), ACM SenSys (2), ACM MobiCom (1), IEEE/CVF CVPR (1), ICML (1), Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (3), IEEE Transactions on Mobile Computing (4), IEEE/ACM Transactions on Networking (1), IEEE Transactions on Information Forensics and Security (1), ACM Transactions on Sensor Networks (1), and Elsevier Smart Health Journal (4). Obtained three best paper awards at FIU. Google Scholar citations: 8,514; h-index: 38.
- Built a strong externally funded research agenda as PI, with five NSF-supported projects spanning adversarially robust wireless localization, 6G sensing and communication systems, RFID-based smart health, data augmentation for wireless spectrum systems, and AI-enabled wireless measurements. These five NSF-funded projects total $4.4M, including $1.31M as my share of PI funding.

Teaching

- Revised and taught four graduate and undergraduate courses at FIU, including Advanced Topics in Machine Learning, Telecommunications Technology and Applications, Mobile and Wireless Networks, and Data Communications, while integrating current research advances into the curriculum. Developed a new graduate course titled Edge Artificial Intelligence: Models, Systems, and Applications. Overall SPOTS rating: 4.26/5 from Fall 2022-current.
- Maintained a balanced teaching and mentoring portfolio across Ph.D., M.S., undergraduate, REU, and K–12 students, fostering research training, scholarly publications, and professional development.

Service

- Provided sustained professional leadership through editorial service, including service as Associate Editor of IEEE Transactions on Mobile Computing, as well as through conference organization, tutorial development, panel service, and extensive technical program committee participation across major IEEE, ACM, and interdisciplinary venues.
- Provided active institutional service through roles including KFSCIS Seminar Series Coordinator, member of the KFSCIS Graduate Program Committee, participant in CIERTA and the Population Health Initiative (PHI) at FIU, and service on the Ph.D. Admission Sub-Committee and the M.S.-TCN Program Sub-Committee at FIU.

Education

Ph.D. in Electrical Engineering
Auburn University, Auburn, AL
Aug. 2018

M.S. in Signal and Information Processing
Xidian University, Xi'an, China
March 2012

B.S. in Electronic Information Engineering
Xidian University, Xi'an, China
July 2009

Full-Time Academic Experience

Assistant Professor
Knight Foundation School of Computing and Information Sciences, Florida International University, Miami, FL
Aug. 2022–Current

Assistant Professor
Department of Computer Science, California State University, Sacramento, Sacramento, CA
Aug. 2018–Aug. 2022

Publications in Discipline

*Google Scholar Citations: **8,514**; h-index: **38** (updated as of 04/25/2026).*

The asterisk (*) marks an FIU student advised by me. Publication record at FIU: 1 book chapter, 20 journal articles, and 43 conference and other publications.

Books, Book Chapters, and Publications

Books

1. Contactless Vital Signs Monitoring, Wenjin Wang and **Xuyu Wang** (editors), Amsterdam, Netherlands: Elsevier, Nov. 2021. This is the first book to systematically introduce different contactless and wireless sensing technologies (e.g. camera, radar, Wi-Fi, acoustics, RFID, etc.) for vital signs monitoring and healthcare applications!

Book Chapters

1. Tianya Zhao*, **Xuyu Wang**, Shiwen Mao, Slobodan Vucetic, Jie Wu, "Adversarial deep learning for indoor localization", Chapter 8 in Network Security Empowered by Artificial Intelligence, Yingying Chen, Jie Wu, Paul L. Yu, and Cliff Wang (editors), Springer, 2024.
2. **Xuyu Wang**, and Dangdang Shao, "Human Physiology and Contactless Vital Sign Monitoring Using Camera and Wireless Signals," Chapter 1 in Contactless Vital Signs Monitoring, Wenjin Wang and Xuyu Wang (editors), Amsterdam, Netherlands: Elsevier, Nov. 2021.
3. **Xuyu Wang**, and Shiwen Mao, "Acoustic-based Vital Sign Monitoring," Chapter 13 in Contactless Vital Signs Monitoring, Wenjin Wang and Xuyu Wang (editors), Amsterdam, Netherlands: Elsevier,

Nov. 2021.

4. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "RFID-based unsupervised apnea detection in health care system," Chapter 2 in Intelligent IoT Systems in Personalized Health Care, A.K. Sangaiah and S.C. Mukhopadhyay (editors), Amsterdam, Netherlands: Elsevier, 2020.

5. **Xuyu Wang** and Shiwen Mao, "Deep learning for indoor localization based on bi-modal CSI data," Chapter 10 in Application of Machine Learning in Wireless Communications, pp.343-369, R. He and Z. Ding (editors). London, UK: The Institution of Engineering and Technology (IET), 2019.

6. **Xuyu Wang**, Chao Yang, and Shiwen Mao, "Sleeping monitoring using WiFI signal,' 'Chapter in *Encyclopedia of Wireless Networks*, pp.1300-1306, X. Shen, X. Lin and K. Zhang (editors). Cham, Switzerland: Springer, 2020. DOI: 10.1007/978-3-319-32903-1_155-1.

Journal & Magazine Publications

1. Xinye Yang, Zhusi Zhong, Scott Collins, Michael Bernstein, Grayson Baird, Terrence Healey, Michael Atalay, Mahesh Jayaraman, **Xuyu Wang**, and Zhicheng Jiao, "Confidence-Gated Cloud-Edge Cascade Triage via Variational Risk Minimization for Medical Imaging," Elsevier Smart Health Journal, to appear.

2. Yujie Sun, **Xuyu Wang**, Guanqun Cao, and Shiwen Mao, "Enabling efficient RF sensing with small Language Models via Functional Data Analysis and parameter efficient tuning," IEEE Internet of Things Journal, to appear. DOI: 10.1109/JIOT.2026.3672036.

3. Tianya Zhao*, Junqing Zhang, Jun Dai, Xiaoyan Sun, and **Xuyu Wang**†, "Unveiling the Threat: Data-Free Backdoor Attacks on Pre-Trained Models for RF Fingerprinting," IEEE Transactions on Mobile Computing, vol.25, no.4, pp.5421-5433, April 2026. (†means the corresponding author)

4. Senhao Gao, Junqing Zhang, Luoyu Mei, Shuai Wang, and **Xuyu Wang**, "Exploring Spatial-Temporal Representation via Star Graph for mmWave Radar-based Human Activity Recognition," IEEE Transactions on Mobile Computing, vol.25, no.4, pp.5700-5715, April 2026.

5. Yujie Sun, **Xuyu Wang**, Guanqun Cao, and Shiwen Mao, "FDALLM+: A functional data analysis-driven Large Language Model framework for network traffic prediction," IEEE Internet of Things Journal, vol.12, no.22, pp.48262-48276, Nov. 2025.

6. Tianya Zhao*, Junqing Zhang, Shiwen Mao, and **Xuyu Wang**†, "Explanation-guided backdoor attacks against model-agnostic RF fingerprinting systems," IEEE Transactions on Mobile Computing, vol.24, no.3, pp.2029-2042, Mar. 2025. (†means the corresponding author)

7. Shuli Zhu, Lingkun Li, **Xuyu Wang**, Qiang Ni, Yuqin Jiang, Hui Gao, Zhaobing Han, and Ruipeng Gao, "Large-Scale Indoor Localization via Outdoor Crowdsourcing Trajectories on Ride-Hailing Platform," in ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Vol. 9, No. 2, pp 1–23, June 2025.

8. Guolin Yin, Junqing Zhang, Xinping Yi, and **Xuyu Wang**. "Evasion Attacks and Countermeasures in Deep Learning-Based Wi-Fi Gesture Recognition." IEEE Transactions on Mobile Computing, vol.24, no.9, pp.8180-8195, April 2025.

9. Guanxiong Shen, Junqing Zhang, **Xuyu Wang**, and Shiwen Mao. "Federated Radio Frequency Fingerprint Identification Powered by Unsupervised Contrastive Learning." IEEE Transactions on Information Forensics & Security, vol.19, pp.9204-9215, Sept. 2024.

10. Kaiyuan Ma, Youpeng Li, Lingling An, Bo Wan, and **Xuyu Wang**†, "SARS: A Personalized Federated Learning Framework Towards Fairness and Robustness against Backdoor Attacks," in ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Vol. 4, No. 4, pp 1–24, Nov. 2024. (†means the corresponding author)

11. Ruipeng Gao, Shuli Zhu, Lingkun Li, **Xuyu Wang**, Yuqin Jiang, Naiqiang Tan, Hua Chai, Peng Qi, Jiqiang Liu, and Dan Tao. "Real-world Large-scale Cellular Localization for Pickup Position Recommendation at Black-hole." IEEE Transactions on Mobile Computing, vol.23, no.12, pp. 15114 - 15131, Dec. 2024.

12. Jing Hou, **Xuyu Wang**, and Amy Z. Zeng. "Inter-Temporal Reward Strategies in the Presence of Strategic Ethical Hackers." IEEE/ACM Transactions on Networking, vol.32, no.5, pp. 4427 - 4440, Oct. 2024.

13. Youpeng Li, **Xuyu Wang**†, Lingling An†, "Hierarchical Clustering-based Personalized Federated Learning for Robust and Fair Human Activity Recognition," in ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Vol. 7, No. 1, pp 1–38, Article 20, March 2023. (†means the corresponding author)

14. Peng Liao, **Xuyu Wang**†, Lingling An, Shiwen Mao, Tianya Zhao, and Chao Yang, "TFSemantic: A time-frequency semantic GAN framework for imbalanced classification using radio signals," in ACM Transactions on Sensor Networks, Special Issue on Contact-free Smart Sensing in AIoT, Vol. 20, No. 4, pp 1–22, Article 20, May 2024. (†means the corresponding author)

15. Peng Liao, **Xuyu Wang**, Yingxin Shan, Lingling An, and Shiwen Mao. "Wireless Sensing in Artificial Intelligence of Things: A General Quantum Machine Learning Framework." IEEE Network, vol.39, no.3, pp 207-214, Jan. 2025.

16. Yanhui Ren, Di Wang, Lingling An, Shiwen Mao, and **Xuyu Wang**, "Quantum contrastive learning for human activity recognition," Elsevier Smart Health Journal, vol.36, pp.1-18, June 2025. DOI: 10.1016/j.smhl.2025.100574.

17. Merih Deniz Toruner, Victoria Shi, John Sollee, Wen-Chi Hsu, Guangdi Yu, Yu-wei Dai, Christian Merlo, Karthik Suresh, Zhicheng Jiao, **Xuyu Wang**, Shiwen Mao, and Harrison Bai, "Artificial intelligence driven wireless sensing for health management," MDPI Bioengineering Journal, vol.12, no.3, pp.244:1-17, Feb. 2025.

18. Erbo Shen, Weidong Yang, **Xuyu Wang**, Bo Kang, and Shiwen Mao. "TagSense: Robust Wheat Moisture and Temperature Sensing Using RFID." IEEE Journal of Radio Frequency Identification (2024).

19. Kaiyuan Ma, Shunan Song, Lingling An, Shiwen Mao, and **Xuyu Wang**. "APC: Contactless healthy sitting posture monitoring with microphone array." Elsevier Smart Health 32 (2024): 100463.

20. Azhar Chara, Tianya Zhao, **Xuyu Wang**, and Shiwen Mao, "Respiratory biofeedback using acoustic sensing with smartphones," Elsevier Smart Health Journal, vol. 28, pp.100387, June 2023. DOI: 10.1016/j.smhl.2023.100387.

Publications Listed Above Since Joining FIU

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21. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "TARF: Technology-agnostic RF sensing for human

activity recognition," IEEE Journal of Biomedical and Health Informatics, Special Issue on Cognitive Cyber-Physical Systems with AI based Solutions in Medical Informatics, vol.27, no.2, pp.636–647, Feb. 2023.

22. Chao Yang, Shiwen Mao, **Xuyu Wang**, "An overview of 3GPP positioning standards," ACM GetMobile, vol.26, no.1, pp.9-13, Mar. 2022.

23. Xiangyu Wang†, **Xuyu Wang**†, Shiwen Mao, Jian Zhang, Senthilkumar CG Periaswamy, and Justin Patton, "Adversarial deep learning for indoor localization," IEEE Internet of Things Journal, vol.9, no.19, pp.18182–18194, Oct. 2022. (†means co-first authors)

24. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "RFID tag localization with a sparse tag array," IEEE Internet of Things Journal, Special Issue on Knowledge and Service Oriented Industrial Internet of Things: Architectures, Challenges and Methodologies, vol.9, no.18, pp.16976-16989, Sept. 2022.

25. Chao Yang, Lingxiao Wang, **Xuyu Wang**, and Shiwen Mao, "Environment adaptive RFID based 3D human pose tracking with a meta-learning approach," IEEE Journal of Radio Frequency Identification, Special Issue on Wireless Motion Capture and Fine-Scale Localization, vol.6, no.1, pp.413-425, Jan. 2022.

26. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "RFID based 3D human pose tracking: A subject generalization approach," Elsevier/KeAi Digital Communications and Networks, Special Issue on Edge computation and intelligence, vol.8, no.3, pp.278-288, Aug. 2022.

27. Pengming Hu, Weidong Yang, **Xuyu Wang**, Shiwen Mao, "Contract-free wheat mildew detection using commodity WiFi," Elsevier/KeAi International Journal of Cognitive Computing in Engineering, vol.3, no.1, pp.9-23, June 2022.

28. Weidong Yang, Erbo Shen, **Xuyu Wang**, Shiwen Mao, Yuehong Gong, and Pengming Hu, "Wi-Wheat+: Contact-free wheat moisture sensing with commodity WiFi based on entropy," Elsevier/KeAi Digital Communications and Networks, Special Issue on Edge computation and intelligence, vol.9, no.3, pp.698-709, 2023.

29. Shanshan Duan, Weidong Yang, **Xuyu Wang**, Shiwen Mao, and Yuan Zhang, "Temperature forecasting for stored grain: A deep spatio-temporal attention approach," IEEE Internet of Things Journal, vol.8, no.23, pp.17147-17160, Dec. 2021.

30. **Xuyu Wang**, Runze Huang, Chao Yang, and Shiwen Mao, "Smartphone sonar based contact-free respiration rate monitoring," ACM Transactions on Computing for Healthcare, vol.2, no.2, Article 15, Mar. 2021.

31. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "RFID-Pose: Vision-Aided Three-Dimensional Human Pose Estimation with Radio-Frequency Identification," IEEE Transactions on Reliability, vol.70, no.3, pp.1218-1231, Sept. 2021.

32. Xiangyu Wang, **Xuyu Wang**, and Shiwen Mao, "Indoor fingerprinting with bimodal CSI tensors: A deep residual sharing learning approach," IEEE Internet of Things Journal, vol.8, no.6, pp.4498-4513, Mar. 2021.

33. Xiangyu Wang†, **Xuyu Wang**†, Shiwen Mao, Jian Zhang, Senthilkumar CG Periaswamy, and Justin Patton, "Indoor radio map construction and localization with deep Gaussian Processes," IEEE Internet of Things Journal, vol.7, no.11, pp. 11238-11249, Nov. 2020. (†means co-first authors)

34. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "Unsupervised drowsy driving detection with RFID," IEEE Transactions on Vehicular Technology, vol.69, no.8, pp. 8151-8163, Aug. 2020.

35. **Xuyu Wang**, Chao Yang, and Shiwen Mao, "Resilient respiration rate monitoring with realtime bimodal CSI data," IEEE Sensors Journal, vol.20, no.17, pp.10187-10198, Sept. 2020.

36. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "Respiration monitoring with RFID in driving environments," IEEE Journal on Selected Areas in Communications, Special Issue on Internet of Things for In-Home Health Monitoring, vol.39, no.2, pp.500-512, Feb. 2021. (The 2022 Best Journal Paper Award of IEEE ComSoc eHealth Technical Committee)

37. **Xuyu Wang**, Chao Yang, and Shiwen Mao, "On CSI-based vital sign monitoring using commodity WiFi," ACM Transactions on Computing for Healthcare, vol.1, no.3, pp.12:1-12:27, Apr. 2020.

38. Shanshan Duan, Weidong Yang, **Xuyu Wang**, Shiwen Mao, and Yuan Zhang, "Forecasting of grain pile temperature from meteorological factors using machine learning," IEEE Access Journal, Special Section on New Technologies for Smart Farming 4.0: Research Challenges and Opportunities, vol.7, no.1, pp.130721-130733, Dec. 2019.

39. Jian Zhang, Xiangyu Wang, Zhitao Yu, Yibo Lyu, Shiwen Mao, Senthilkumar CG Periaswamy, Justin Patton, and **Xuyu Wang**, "Robust RFID based 6-DoF localization for unmanned aerial vehicles," IEEE Access Journal, Special Section on Network Resource Management in Flying Ad Hoc Net-works: Challenges, Potentials, Future Applications, and Wayforward, vol.7, no.1, pp. 77348-77361, June 2019.

40. **Xuyu Wang**, Zhitao Yu, and Shiwen Mao, "Indoor localization using magnetic and light sensors with smartphones: A deep LSTM approach," Springer Mobile Networks and Applications (MONET) Journal, Special Issue on Towards Future Ad Hoc Networks: Technologies and Applications, vol.25, no.2, pp.819-832, Apr. 2020.

41. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "Unsupervised detection of apnea using commodity RFID tags with a recurrent variational autoencoder," IEEE Access Journal, Special Section on Advanced Information Sensing and Learning Technologies for Data-centric Smart Health Applications, vol.7, no.1, pp.67526-67538, June 2019.

42. Jian Zhang, Zhitao Yu, Xiangyu Wang, Yibo Lyu, Shiwen Mao, Senthilkumar CG Periaswamy, Justin Patton, and **Xuyu Wang**, "RFHUI: An RFID based human-unmanned aerial vehicle interaction system in an indoor environment," Elsevier Digital Communications and Networks Journal, vol.6, no.1, pp.14-22, Feb. 2020. DOI: 10.1016/j.dcan.2019.05.001. (included in DCN's High-influence Article Collection, Nov. 2020)

43. **Xuyu Wang**, Xiangyu Wang, and Shiwen Mao, "Deep convolutional neural networks for indoor localization with CSI images," IEEE Transactions on Network Science and Engineering, Special Issue on Network Science for Internet of Things (IoT), vol.7, no.1, pp.316-327, Jan./Mar. 2020. DOI: 10.1109/TNSE.2018.2871165. (No. 2/3/4 in Popular Documents: Oct. 2018 ~ June 2020) (Web of Science ESI Highly Cited Paper)

44. **Xuyu Wang**, Xiangyu Wang, and Shiwen Mao, "RF sensing for Internet of Things: A general deep learning framework," IEEE Communications magazine, Feature Topic on Exploring Caching, Communications, Computing and Security for the Emerging Smart Internet of Things, vol.56, no.9, pp.62-67, Sept. 2018.

45. **Xuyu Wang**, Shiwen Mao, and Michelle X. Gong, "An overview of 3GPP cellular vehicle-to-

everything standards," ACM GetMobile: Mobile Computing and Communications Review, vol.21, no.3, pp.19-25, Sept. 2017. DOI: 10.1145/3161587.3161593. (Sample Articles of ACM Getmobile)

46. **Xuyu Wang**, Lingjun Gao, and Shiwen Mao, "BiLoc: Bi-modality deep learning for indoor localization with 5GHz commodity Wi-Fi," IEEE Access Journal, Special Section on Cooperative and Intelligent Sensing, vol.5, no.1, pp.4209-4220, Mar. 2017.

47. **Xuyu Wang**, Chao Yang, and Shiwen Mao, "TensorBeat: Tensor decomposition for monitoring multi-person breathing beats with commodity WiFi," ACM Transactions on Intelligent Systems and Technology, Special Issue on Data-driven Intelligence for Wireless Networking, vol.9, no.1, Article 8, pp.8:1-8:27, Sept. 2017.

48. **Xuyu Wang**, Shiwen Mao, and Michelle X. Gong, "A survey of LTE Wi-Fi coexistence in unlicensed bands," ACM GetMobile: Mobile Computing and Communications Review, vol.20, no.3, pp.17-23, July 2016.

49. **Xuyu Wang**, Lingjun Gao, and Shiwen Mao, "CSI phase fingerprinting for indoor localization with a deep learning approach," IEEE Internet of Things Journal, vol.3, no.6, pp.1113-1123, Dec. 2016. DOI: 10.1109/JIOT.2016.2558659. (Top 50 most accessed in 2017) (Web of Science ESI Highly Cited Paper)

50. **Xuyu Wang**, Lingjun Gao, Shiwen Mao, and Santosh Pandey, "CSI-based fingerprinting for indoor localization: A deep learning approach," IEEE Transactions on Vehicular Technology, vol.66, no.1, pp.763-776, Jan. 2017. DOI: 10.1109/TVT.2016.2545523. (Top 1/Top 2 Popular Documents, 2017-2019) (featured in MMTC Communications-Review, vol.9, no.6, Dec. 2018) (The IEEE ComSoc Best Readings in Machine Learning in Communications) (The 2018 IEEE ComSoc MMTC Best Journal Paper Award) (Web of Science ESI Highly Cited Paper) (IEEE Vehicular Technology Society 2020 Jack Neubauer Memorial Award)

Conference & Workshop Publications

1. Jingzhou Shen*, Tianya Zhao*, and **Xuyu Wang**†, "A Geometric Algebra-Informed 3DGS Framework for Wireless Channel Prediction", Proc. IEEE/CVF CVPR 2026, Denver, CO, June 2026. (Acceptance rate: 25.4%) (†means the corresponding author)

2. Haowen Xu, Tianya Zhao*, **Xuyu Wang**, Lei Ma, Jun Dai, Alexander Wyglinski, and Xiaoyan Sun, "EMPalm: Exfiltrating Palm Biometric Data via Electromagnetic Side-Channel", Proc. ACM SenSys 2026, Saint-Malo, France, May 2026. (Acceptance rate: 52/263=19.8%)

3. Jingzhou Shen*, Luis Lago Enamorado*, Shiwen Mao, and **Xuyu Wang**†, "Geometric algebra-informed NeRF framework for generalizable wireless channel prediction," in Proc. IEEE INFOCOM 2026, Tokyo, Japan, May 2026. Acceptance rate: 329/1740=18.9%. (†means the corresponding author)

4. Yiting Wang*, Tianya Zhao*, and **Xuyu Wang**, "Revisiting Time-Domain Interpretability for Self-Supervised IMU Sensing Models," in Proc. DySPAN'26 ML-Spec Workshop, Washington, DC, May 2026.

5. Yiting Wang*, Tianya Zhao*, and **Xuyu Wang**, "Revisiting Time-Domain Interpretability for Self-Supervised IMU Sensing Models," in Proc. IEEE/ACM International Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE 2026), Pittsburgh, PA, Aug. 2026.

6. Yujie Sun, **Xuyu Wang**, Guanqun Cao, and Shiwen Mao, "Uncertainty aware and scalable WiFi CSI sensing with Large Language Models," in Proc. IEEE/ACM International Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE 2026), Pittsburgh, PA, Aug. 2026.

7. Yujie Sun, **Xuyu Wang**, and Shiwen Mao, "Hybrid quantum-classical convolutional neural network for robust RF sensing," in Proc. The 2026 International Conference on Computing, Networking and Communications (ICNC), Maui, HI, Feb. 2026, pp.453-458. (Best Paper Award)

8. Yujie Sun, Rohan Kumar*, Tianya Zhao*, Yiting Wang*, Bolin Xiang, Shiwen Mao, and **Xuyu Wang**, "Cross-domain RF fingerprinting with FDA-based representations and few-shot learning," in Proc. IEEE INFOCOM 2026 Workshop on Deep Learning for Wireless Communications, Sensing and Security (Deep Wireless 2026), Tokyo, Japan, May 2026.

9. Youpeng Li, Weiliang Qi, **Xuyu Wang**, Fuxun Yu, and Xinda Wang, "Revisiting Pre-trained Language Models for Vulnerability Detection," in Proc. ACM AsiaCCS 2026. Acceptance rate: 33/260=12.7%. (Note: accepted without shepherding)

10. Tianya Zhao* and **Xuyu Wang**, "Data-Free Backdoor Attacks on Self-Supervised Human Activity Recognition Models," Proc. IEEE MASS 2025, Chicago, IL, Oct. 2025.

11. Jingzhou Shen* and **Xuyu Wang**, "An Efficient and Explainable KAN Framework for Wireless Radiation Field Prediction," in Proc. IEEE 22nd International Conference on Mobile Ad Hoc and Smart Systems (MASS 2025), Chicago, IL, Oct. 2025.

12. Ningning Wang*, Yiting Wang*, Tianya Zhao*, Yuwei Dai, Harrison Bai, Karthik Suresh, Zhicheng Jiao, Shiwen Mao, and **Xuyu Wang**, " RFID-Based Vital Sign Monitoring Under Motion Using Physics-Informed Generative Models," in Proc. IEEE 22nd International Conference on Mobile Ad Hoc and Smart Systems (MASS 2025), Chicago, IL, Oct. 2025.

13. Yujie Sun, **Xuyu Wang**, Guangun Cao, and Shiwen Mao, "Functional data analysis-guided prompt design for RFID sensing and localization using LLMs," in Proc. IEEE GLOBECOM 2025, Taipei, Taiwan, Dec. 2025.

14. Tianya Zhao*, Ningning Wang*, and **Xuyu Wang**†, "Membership Inference Against Self-supervised IMU Sensing Applications", in Proc. ACM SenSys 2025, Irvine, CA, May 2025. Acceptance rate: 46/245=18.8%. (†means the corresponding author)

15. Yiting Wang*, Tianya Zhao*, and **Xuyu Wang**, "Fine-grained heartbeat waveform monitoring with rfid: A latent diffusion model," in Proceedings of the 3rd International Workshop on Human-Centered Sensing, Modeling, and Intelligent Systems, pp. 86–91, 2025.

16. Ningning Wang*, Tianya Zhao*, Shiwen Mao, and **Xuyu Wang**†, "Privacy-Preserving Wi-Fi Data Generation via Differential Privacy in Diffusion Models", in Proc. IEEE INFOCOM 2025, London, UK, May 2025. Acceptance rate: 272/1458=18.7%. (†means the corresponding author)

17. Tianya Zhao*, Ningning Wang*, Junqing Zhang, and **Xuyu Wang**†, "Protocol-agnostic and Data-free Backdoor Attacks on Pre-trained Models in RF Fingerprinting", in Proc. IEEE INFOCOM 2025, London, UK, May 2025. Acceptance rate: 272/1458=18.7%. (†means the corresponding author)

18. Haowen Xu, Tianya Zhao*, **Xuyu Wang**, Jun Dai, Xiaoyan Sun, "MagWatch: Exposing Privacy Risks in Smartwatches through Electromagnetic Signals," in Proc. IEEE ICICS2025-The 2025 International Conference on Information and Communications Security, Oct. 2025.

19. Jingzhou Shen*, Tianya Zhao*, Yanzhao Wu, and **Xuyu Wang**, “NeRF-APT: A New NeRF Framework for Wireless Channel Prediction” in Proc. IEEE INFOCOM 2025 Workshop.

20. Shi, Sai, Vahid Mahzoon, **Xuyu Wang**, Shiwen Mao, Jie Wu, and Slobodan Vucetic, "Towards a Unified Few-Shot Learning Evaluation Framework for RF Fingerprinting,” in Proc. 34th International Conference on Computer Communications and Networks (ICCCN), pp. 1-9. IEEE, 2025.

21. Jing Hou, **Xuyu Wang**, and Amy Z. Zeng. "Pricing Strategies in Cybersecurity Markets with Network Effects." In 2025 IEEE 22nd Consumer Communications & Networking Conference (CCNC), pp. 1-4. IEEE, 2025.

22. Yujie Sun, **Xuyu Wang**, Guanqun Cao, and Shiwen Mao, “FDALLM: Traffic data prediction with functional data analysis and Large Language Models,” in Proc. IEEE ICC 2025, Montreal, Canada, June 2025.

23. Kavya Gopireddy, Yiting Wang*, Jingzhou Shen*, Jason Jiang*, **Xuyu Wang**, "A Dual-Modality Approach for Contactless Vital Sign Monitoring Using Camera and Wi-Fi CSI,” in 2025 IEEE/ACM Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE) Workshop, pp. 470-475. IEEE, 2025.

24. Tianya Zhao*, Ningning Wang*, Shiwen Mao, and **Xuyu Wang**, "Few-shot learning and data augmentation for cross-domain UAV fingerprinting," in Proc. ACM MobiCom 2024 Workshop on Machine Learning for NextG Networks (MLNextG24), Washington, D.C., Nov. 2024.

25. Yanhui Ren, Di Wang, Lingling An, Shiwen Mao, and **Xuyu Wang**, “Multi-positive sample quantum contrastive learning for human activity recognition,” In Proc. IEEE GLOBECOM 2024, Cape Town, South Africa, Dec. 2024.

26. Shuai Zhu, Di Wang, Shiwen Mao, and **Xuyu Wang**, “ContrastMask: A novel perturbation-based method for explaining network intrusion detection,” in Proc. IEEE Healthcom 2024, Nara, Japan, Nov. 2024.

27. Youpeng Li, Xinda Wang, Fuxun Yu, Lichao Sun, Wenbin Zhang, and **Xuyu Wang***, “FedCAP: Robust Federated Learning via Customized Aggregation and Personalization,” in Proc. Annual Computer Security Applications Conference (ACSAC), 2024. Acceptance rate: 83/421=19.7%. (*means the corresponding author)

28. Ningning Wang*, Tianya Zhao*, Shiwen Mao, Harrison X. Bai, Zhicheng Jiao, and **Xuyu Wang**. "ECG-grained Cardiac Monitoring Using RFID." In 2024 33rd International Conference on Computer Communications and Networks (ICCCN), pp. 1-9. IEEE, 2024.

29. Yue Huang, Lichao Sun, Haoran Wang, Siyuan Wu, Qihui Zhang, Yuan Li, Chujie Gao et al. "Position: TrustLLM: Trustworthiness in Large Language Models." In International Conference on Machine Learning (ICML), pp. 20166-20270. PMLR, 2024.

30. Tianya Zhao*, Ningning Wang*, Yanzhao Wu, Wenbin Zhang,and **Xuyu Wang**, "Backdoor Attacks Against Low-Earth Orbit Satellite Fingerprinting," in Proc. IEEE INFOCOM 2024 workshop, Vancouver, Canada, May 2024.

31. Tianya Zhao*, **Xuyu Wang**†, Junqing Zhang, and Shiwen Mao, "Explanation-Guided Backdoor Attacks on Model-Agnostic RF Fingerprinting," in Proc. IEEE INFOCOM 2024, Vancouver, Canada, May 2024. Acceptance rate: 256/1307=19.6%. (†means the corresponding author)

32. Tianya Zhao*, **Xuyu Wang**†, and Shiwen Mao, "Cross-domain, Scalable, and Interpretable RF Device Fingerprinting," in Proc. IEEE INFOCOM 2024, Vancouver, Canada, May 2024. Acceptance rate: 256/1307=19.6%. (†means the corresponding author)

33. Tianya Zhao*, Ningning Wang*, Guanqun Cao, Shiwen Mao and **Xuyu Wang**, "Functional Data Analysis Assisted Cross-Domain Wi-Fi Sensing Using Few-Shot Learning" in Proc. IEEE ICC 2024, Denver, CO, June 2024.

34. Sribala Vidyadhari Chinta, Karen Fernandes, Ningxi Cheng, Jordan Fernandez, Shamim Yazdani, Zhipeng Yin, Zichong Wang, **Xuyu Wang**, Weifeng Xu, Jun Liu, Chong Siang Yew, Puqing Jiang, Wenbin Zhang, "Optimization and Improvement of Fake News Detection using Voting Technique for Societal Benefit" in Proc. IEEE International Conference on Data Mining Workshops (ICDMW) 2023, Shanghai, China, Dec. 2023.

35. Zichong Wang, Nripsuta Saxena, Tongjia Yu, Sneha Karki, Tyler Zetty, Israat Haque, Shan Zhou, Dukka Kc, Ian Stockwell, **Xuyu Wang**, Albert Bifet and Wenbin Zhang, "Preventing Discriminatory Decision-making in Evolving Data Stream," in Proc. ACM Conference on Fairness, Accountability, and Transparency (FAccT), Chicago, USA, 2023. (The ACM FAcct 2023 Best Paper Award).

36. Jing Hou, **Xuyu Wang**, and Amy Z. Zeng, "Inter-temporal Reward Decisions with Strategic Ethical Hackers," in Proc. IEEE CNS 2023, Orlando, FL, Oct. 2023.

37. Shuli Zhu, Lingkun Li, **Xuyu Wang**, Changcheng Liu, Yuqing Jiang, Zengwei Huo, Hua Chai, Jiqiang Liu, Dan Tao, Ruipeng Gao., "Experience: Large-scale Cellular Localization for Pickup Position Recommendation at Black-hole" in Proc. ACM MobiCom 2023, Madrid, Spain, Oct. 2023. Acceptance rate: 92/377=24.4%.

38. Tianya Zhao*, **Xuyu Wang**, and Shiwen Mao, "Backdoor attacks against deep learning-based massive MIMO localization," in Proc. IEEE GLOBECOM 2023, Kuala Lumpur, Malaysia, Dec. 2023.

39. Yingxin Shan, Peng Liao, **Xuyu Wang**, Lingling An, and Shiwen Mao, "Classical to quantum transfer learning framework for wireless sensing under domain shift," in Proc. IEEE GLOBECOM 2023, Kuala Lumpur, Malaysia, Dec. 2023.

40. Yingxin Shan, Peng Liao, **Xuyu Wang**, Lingling An, and Shiwen Mao, "MAA: Modulation-adaptive acoustic gesture recognition," in Proc. IEEE MASS 2023, Toronto, Canada, Sept. 2023.

41. Erbo Shen, Weidong Yang, **Xuyu Wang**, and Shiwen Mao, "Foreign material detection and localization in stored grain with passive RFID tag arrays," in Proc. IEEE RFID-TA 2023, Special Session on "Next-generation RFID systems empowered by location awareness," Aveiro, Portugal, Sept. 2023, pp.193-196.

42. Harshit Ambalkar, Tianya Zhao*, **Xuyu Wang**, and Shiwen Mao, "Adversarial attack and defense for WiFi-based apnea detection system," in Proc. IEEE INFOCOM Posters, Hoboken, NJ, May 2023.

43. Steven Mackey, Tianya Zhao*, **Xuyu Wang**, and Shiwen Mao, "Poster Abstract: Cross-domain adaptation for RF fingerprinting using prototypical networks," in Proc. ACM SenSys 2022, Boston, MA, Nov. 2022, pp.812-813.

Publications Listed Above Since Joining FIU

44. Pengming Hu, Weidong Yang, **Xuyu Wang**, Shiwen Mao, and Erbo Shen, "WiWm-EP: Wi-Fi CSI-based wheat moisture detection using equivalent permittivity," in Proc. IEEE INFOCOM WKSHPS: DeepWireless 2023: Deep Learning for Wireless Communications, Sensing, and Security, Hoboken, NJ, May 2023.

45. Gargi Gopalkrishna Prabhugaonkar, Xiaoyan Sun, **Xuyu Wang**, Jun Dai, "Deep IoT Monitoring: Filtering IoT Traffic Using Deep Learning," in Proceedings of 3rd International Silicon Valley Cybersecurity Conference 2022 (SVCC 2022).

46. Pengming Hu, Weidong Yang, **Xuyu Wang**, Shiwen Mao, and Chao Niu, "WiPd: Contactless water-injected pork detection using commodity WiFi devices," in Proc. IEEE MASS 2022, Denver, CO, Oct. 2022.

47. Shivenkumar Parmar, **Xuyu Wang**, Chao Yang, and Shiwen Mao, "Voice fingerprinting for indoor localization with a single microphone array and deep learning," in Proc. the Fourth ACM Wireless Security and Machine Learning Workshop (WiseML'22), in conjunction with ACM WiSec 2022, San Antonio, TX, May 2022.

48. Ushasree Boora, **Xuyu Wang**, and Shiwen Mao, "Robust massive MIMO localization using neural ODE in adversarial environments," in Proc. IEEE ICC 2022, Seoul, South Korea, May 2022.

49. Erbo Shen, Weidong Yang, **Xuyu Wang**, Shiwen Mao, and Wei Bin, "TagSense: Robust wheat moisture and temperature sensing using a passive RFID tag," in Proc. IEEE ICC 2022, Seoul, South Korea, May 2022. (The IEEE ICC 2022 Best Paper Award).

50. Chao Yang, Lingxiao Wang, **Xuyu Wang**, and Shiwen Mao, "Demo Abstract: Environment-adaptive 3D human pose tracking with RFID," in Proc. IEEE INFOCOM 2022, Virtual Conference, May 2022. (The IEEE INFOCOM 2022 Demo Award).

51. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "Demo Abstract: Technology-agnostic approach to RF based human activity recognition," in Proc. IEEE INFOCOM 2022, Virtual Conference, May 2022.

52. Chao Yang, Lingxiao Wang, **Xuyu Wang**, and Shiwen Mao, "Meta-Pose: Environment-adaptive human skeleton tracking with RFID," in Proc. IEEE GLOBECOM 2021 (GLOBECOM'21), Madrid, Spain, Dec. 2021.

53. Harshit Ambalkar, **Xuyu Wang**, and Shiwen Mao, "Adversarial human activity recognition using Wi-Fi CSI," in Proc. 2021 Annual IEEE Canadian Conference of Electrical and Computer Engineering (CCECE'21), Virtual Conference, Sept. 2021.

54. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "RFID-based vital sign monitoring," in Proc. The 2021 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI'21), Special Session on Contactless Vital Signs Monitoring for AI Healthcare, Virtual Conference, July 2021.

55. **Xuyu Wang** and Shiwen Mao, "Acoustic-based vital sign monitoring," in Proc. The 2021 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI'21), Special Session on Contactless Vital Signs Monitoring for AI Healthcare, Virtual Conference, July 2021.

56. Mohini Patil, **Xuyu Wang**, Xiangyu Wang, and Shiwen Mao, "Adversarial attacks on deep learning-based floor classification and indoor localization," in Proc. 2001 ACM Workshop on Wireless

Security and Machine Learning (WiseML'21), Abu Dhabi, United Arab Emirates, June-July 2021.

57. **Xuyu Wang**, Mohini Patil, Chao Yang, Shiwen Mao, and Palak Anilkumar Patel, "Deep Convolutional Gaussian Processes for mmWave outdoor localization," in Proc. IEEE ICASSP 2021, Special Session on Contactless and Wireless Sensing for Smart Environments, Toronto, Canada, June 2021.

58. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "Subject-adaptive skeleton tracking with RFID," in Proc. The 16th IEEE International Conference on Mobility, Sensing and Networking (MSN 2020), Tokyo, Japan, Dec. 2020 (8 pages).

59. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "Demo Abstract: Vision-aided 3D human pose estimation with RFID," Demo, in Proc. The 16th IEEE International Conference on Mobility, Sensing and Networking (MSN 2020), Tokyo, Japan, Dec. 2020 (2 pages).

60. Shanshan Duan, Weidong Yang, **Xuyu Wang**, Shiwen Mao, and Yuan Zhang, "Deep spatio-temporal attention model for grain storage temperature forecasting," in Proc. IEEE 2020 International Conference on Parallel and Distributed Systems (ICPADS 2020), Hong Kong, China, Dec. 2020 (8 pages).

61. Jait Purohit, **Xuyu Wang**, Shiwen Mao, Xiaoyan Sun, and Chao Yang, "Fingerprinting-based indoor and outdoor localization with LoRa and deep learning," in Proc. IEEE GLOBECOM 2020, Taipei, Taiwan, Dec. 2020.

62. Mansi Patel, **Xuyu Wang**, and Shiwen Mao, "Data augmentation with Conditional GAN for automatic modulation classification," in Proc. Proc. 2020 ACM Workshop on Wireless Security and Machine Learning (WiseML 2020), in conjunction with the 13th ACM Conference on Security and Privacy in Wireless and Mobile Networks (ACM WiSec 2020), Linz, Austria, July 2020.

63. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "RFID-based driving fatigue detection," in Proc. IEEE GLOBECOM 2019, Waikoloa, HI, Dec. 2019. (The IEEE GLOBECOM 2019 Best Paper Award).

64. Pengming Hu, Weidong Yang, **Xuyu Wang**, and Shiwen Mao, "MiFi: Device-free wheat mildew detection using off-the-shelf WiFi devices," in Proc. IEEE GLOBECOM 2019, Waikoloa, HI, Dec. 2019.

65. Xianting Ke, Lingling An, Qingqi Pei, and **Xuyu Wang**, "Race Classification Based Iris Image Segmentation," in Internation Conference on SmartMultimedia (ICSM) 2019, San Diego, CA, Dec. 2019.

66. Chao Yang, **Xuyu Wang**, and Shiwen Mao, "SparseTag: High-precision backscatter indoor localization with sparse RFID tag arrays," in Proc. IEEE SECON 2019, Boston, MA, June 2019.

67. Shanshan Duan, Weidong Yang, **Xuyu Wang**, Shiwen Mao, and Yuan Zhang, "Grain pile temperature forecasting from weather factors: A support vector regression approach," in Proc. IEEE/CIC ICCC 2019, Changchun, China, Aug. 2019.

68. Chao Yang*, **Xuyu Wang***, and Shiwen Mao, "AutoTag: Recurrent variational autoencoder for unsupervised apnea detection with RFID tags," in Proc. IEEE GLOBECOM 2018, Abu Dhabi, United Arab Emirates, Dec. 2018. (*means Co-first authors)

69. Xiangyu Wang*, **Xuyu Wang***, Shiwen Mao, Jian Zhang, Senthilkumar C.G. Periaswamy, and Justin Patton, "DeepMap: Deep Gaussian Process for indoor radio map construction and location

estimation," in Proc. IEEE GLOBECOM 2018, Abu Dhabi, United Arab Emirates, Dec. 2018. (*means Co-first authors)

70. Jian Zhang, Zhitao Yu, Xiangyu Wang, Yibo Lyu, Shiwen Mao, Senthilkumar C.G. Periaswamy, Justin Patton, and **Xuyu Wang**, "RFHUI: An intuitive and easy-to-operate human-UAV interaction system for controlling a UAV in a 3D space," in Proc. EAI MobiQuitous 2018, New York City, NY, Nov. 2018.

71. Weidong Yang, **Xuyu Wang**, Shui Cao, Hui Wang, and Shiwen Mao, "Multi-class wheat moisture detection with 5GHz Wi-Fi: A deep LSTM approach," in Proc. IEEE ICCCN 2018, Hangzhou, China, July/Aug. 2018.

72. Weidong Yang, **Xuyu Wang**, Anxiao Song, and Shiwen Mao, "Wi-Wheat: Contact-free wheat moisture detection using commodity WiFi," in Proc. IEEE ICC 2018, Kansas City, MO, May 2018.

73. **Xuyu Wang**, Zhitao Yu, and Shiwen Mao, "DeepML: Deep LSTM for indoor localization with smartphone magnetic and light sensors," in Proc. IEEE ICC 2018, Kansas City, MO, May 2018.

74. **Xuyu Wang**, Xiangyu Wang, and Shiwen Mao, "ResLoc: Deep residual sharing learning for indoor localization with CSI tensors," in Proc. IEEE PIMRC 2017, Montreal, QC, Canada, Oct. 2017. (The IEEE PIMRC 2017 Best Student Paper Award)

75. **Xuyu Wang**, Chao Yang, and Shiwen Mao, "ResBeat: Resilient breathing beats monitoring with realtime bimodal CSI data," in Proc. IEEE GLOBECOM 2017, Singapore, Dec. 2017.

76. **Xuyu Wang**, Runze Huang, and Shiwen Mao, "SonarBeat: Sonar phase for breathing beat monitoring with smartphones," in Proc. ICCCN 2017, Vancouver, Candada, July/Aug. 2017.

77. **Xuyu Wang**, Runze Huang, and Shiwen Mao, "Demo Abstract: SonarBeat: Sonar phase for breathing beat monitoring with smartphones," in Proc. IEEE SECON 2017, San Diego, CA, June 2017.(The IEEE SECON 2017 Best Demo Award)

78. **Xuyu Wang**, Chao Yang, and Shiwen Mao, "PhaseBeat: Exploiting CSI phase data for vital sign monitoring with commodity WiFi devices," in Proc. IEEE ICDCS 2017, Atlanta, GA, June 2017.

79. **Xuyu Wang**, Xiangyu Wang, and Shiwen Mao, "CiFi: Deep convolutional neural networks for indoor localization with 5GHz Wi-Fi," in Proc. IEEE ICC 2017, Paris, France, May 2017.

80. **Xuyu Wang**, Lingjun Gao, and Shiwen Mao, "PhaseFi: Phase fingerprinting for indoor localization with a deep learning approach," in Proc. IEEE GLOBECOM 2015, San Diego, CA, Dec. 2015, pp.1-6.

81. **Xuyu Wang**, Lingjun Gao, Shiwen Mao, and Santosh Pandey, "DeepFi: Deep learning for indoor fingerprinting using channel state information," in Proc. IEEE WCNC 2015, New Orleans, LA, Mar. 2015, pp.1666-1671.

82. **Xuyu Wang**, Hui Zhou, Shiwen Mao, Santosh Pandey, Prathima Agrawal, and David Bevly, "Mobility improves LMI-based cooperative indoor localization," in Proc. IEEE WCNC 2015, New Orleans, LA, Mar. 2015, pp.2215-2220.

83. **Xuyu Wang**, Shiwen Mao, Santosh Pandey, and Prathima Agrawal, "CA2T: Cooperative antenna arrays technique for pinpoint indoor localization," in Proc. MobiSPC 2014, Niagara Falls, Canada, Aug. 2014, pp.392-399.

84. **Xuyu Wang**, "Deployment of High Altitude Platforms in Heterogeneous Wireless Sensor Network via MRF-MAP and Potential Games," Proc. IEEE WCNC 2013, Shanghai, China, Apr. 2013, pp. 1446–1451.

85. **Xuyu Wang**, Xinbo Gao, and Ru Zong, "Energy-Efficient Deployment of Airships for High Altitude Platforms: A Deterministic Annealing Approach," Proc. IEEE GLOBECOM 2011, Houston, Texas, USA, Dec. 2011.

86. **Xuyu Wang**, Xinbo Gao, and Ru Zong, "An Optimal Model and Solution of Deployment of Airships for High Altitude Platforms," Proc. IEEE WCSP 2010, Suzhou, China, Oct. 2010.

87. Ru Zong, Xinbo Gao, **Xuyu Wang**, and Zongting Lv "Deployment of High Altitude Platforms Network: A Game Theoretic Approach," Proc. IEEE ICNC 2012, Workshop on Computing, Networking and Communications, Maui, Hawaii, USA, January, 2012, pp. 304–308.

88. Peng Cheng, Anjin Guo, Youyun Xu, **Xuyu Wang**, and Xinbo Gao, "A Game Approach for Dynamic Resource Allocation in Cognitive Radio Networks," in Proc. IEEE WCSP 2010, Suzhou, China, Oct. 2010.

Sponsored Research

*(5 NSF-funded projects totaling $4.4M; my share of PI funding is **$1.31M**. My NSF CAREER proposal is currently being considered by the NSF Program Director for a funding recommendation.)*

Funded Research Grants

$600,000 Collaborative Research: NSF-MeitY: CNS Core: Small: Learning-Assisted Integrated Sensing, Communication and Security for 6G UAV Networks. Source of Support: NSF. Xuyu Wang (PI), awarded. Project Period: 10/01/2024-09/30/2027. My share: $300,000.

$600,000 Collaborative Research: IMR: MM-1A: Functional Data Analysis-aided Learning Methods for Robust Wireless Measurements. Source of Support: NSF. Xuyu Wang (PI), Awarded, Project Period: 10/1/2023-09/30/2026. My share: $200,000

$1,200,000 Collaborative Research: SCH: AI-driven RFID Sensing for Smart Health Applications. Source of Support: NSF. Xuyu Wang (PI), Awarded, Project Period: 08/15/2023-07/31/2027. My share: $300,000.

$240,000 Collaborative Research: BPC Supplement: Data Augmentation and Adaptive Learning for Next Generation Wireless Spectrum Systems. Source of Support: NSF. Xuyu Wang (PI), Awarded, Project Period: 10/01/2022-09/30/2026. My share: $54,823.

$1,200,000 Collaborative Research: CNS Core: Medium: Data Augmentation and Adaptive Learning for Next Generation Wireless Spectrum Systems. Source of Support: NSF. Xuyu Wang (PI), Awarded, Project Period: 10/01/2021-09/30/2026. My share: $279,946.

$174,999 CRII: CNS: RUI: Exploiting Robust Deep Learning Framework for Wireless Localization Systems in Adversarial IoT Environments. Source of Support: NSF. Xuyu Wang (PI), Awarded, Project Period: 07/01/2021-06/30/2025. My share: $174,999.

$405,000 NSF REU SITE: ASSET: Advanced Secured Sensor Enabling Technologies. Source of Support: NSF. Xuyu Wang (Senior Personal), Awarded, Project Period: 03/01/2023-02/28/2027.

$2,500 Faculty Research Incentive Grant (FRIG), Xuyu Wang (PI), Awarded at CSUS.

$2,000 Health Sensing in Internet of Things Using Deep Learning, Xuyu Wang (PI), Awarded from Dean Office at CSUS.

Submitted and Pending Proposals

$553,008 CAREER: Enabling Generative, Robust, and Interpretable Wireless Intelligence for RF Spectrum Foundations and Applications. Source of Support: NSF. Xuyu Wang (PI). Submitted. Project Period: 07/01/2026-06/30/2031. My share: $553,008. **As of April 6, 2026, this NSF CAREER proposal is under consideration by the NSF Program Director for a funding recommendation.**

$750,000 Collaborative Research: VINES: Track 1: NSF-JST: Digital Twins for Smart Healthcare: Closing the Loop with Sensing, Actuation, and Learning. Source of Support: NSF. Xuyu Wang (PI), Submitted, Project Period: 04/1/2026-03/31/2029. My share: $225,000.

$464,999 NSF REU SITE: ASSET: Advanced Secured Sensor Enabling Technologies. Source of Support: NSF. Xuyu Wang (Senior Personal), Submitted, Project Period: 03/1/2026-02/28/2029. My share: 0.3 summer month. **This NSF proposal is under consideration by the NSF Program Director for a funding recommendation.**

$600,000 RET in Engineering and Computer Science SITE: Research Experience for Teachers on Cyber-Enabled Technologies. Source of Support: NSF. Xuyu Wang (Senior Personal), Submitted, Project Period: 03/1/2026-02/28/2029. My share: 0.09 summer month.

$709,690.84 HPC & GPU Resources for ML Biomedical Research at FIU. Source of Support: NIH. Xuyu Wang (Senior Personal), Submitted, Project Period: 04/1/2027-03/31/2032. My share: 0.5 summer month.

Student Supervision and Mentoring

Doctoral Students at FIU

- **Tianya Zhao**, Ph.D. student (since Fall 2022). **Tianya will graduate in Summer 2026**.
- **Jingzhou Shen**, Ph.D. student (since Fall 2024).
- **Yiting Wang**, Ph.D. student (since Spring 2025).
- **Chuan Liu**, Ph.D. student (since Summer 2026).

Ph.D. Committee Member

- **Duy Nguyen**
- **Daniel Correa**
- **Aitian Ma**
- **Zhuomin Chen**
- **Xu Zheng**

Master's Students at FIU

- **Rohan Kumar**, M.S. student.

- **Luis Lago Enamorado**, M.S. student.

Undergraduate and REU Students

- **Yanelli Gloria**, B.S. student from UCSC, Spring 2024 (supported by the CASHI Spring 2024 program).
- **Ben Abraham**, B.S. student from Kean University, Summer 2023 (supported by the NSF REU project).
- **Jason Jiang**, B.S. student from FIU.
- **Jacob Van**, B.S. student from FIU.

K-12 Students

- **Bolin Xiang**, Bridgeland High School, Cypress, Texas, Summer 2025. She will begin her undergraduate studies at Carnegie Mellon University in Fall 2026.

Alumni

- Xiangyu Wang (co-advised with Dr. Shiwen Mao), Ph.D. in ECE, Auburn University (currently Assistant Professor, The University of Alabama)
- Ningning Wang, Ph.D. student, Knight Foundation School of Computing and Information Sciences, Fall 2023–Fall 2024 (on leave due to health issues)
- Steven Mackey, M.S. in Computer Science, CSUS (Software Engineer, Northrop Grumman)
- Jimil Patel, M.S. in Computer Science, CSUS (Software Engineer, Amazon)
- Mansi Patel, M.S. in Computer Science, CSUS (Software Engineer, Solidigm)
- Ushasree Boora, M.S. in Computer Science, CSUS (Data Engineer, Amazon)
- Harshit Ambalkar, M.S. in Computer Science, CSUS (Software Engineer, PlayStation)
- Shiven Parmar, M.S. in Computer Science, CSUS (Software Engineer, Oracle)
- Kavya Gopireddy, M.S. in Computer Science, CSUS (Software Engineer, Microsoft)
- Harini Madhavaram, M.S. in Computer Science, CSUS (Software Engineer, ServiceNow)
- Anser Parvez Nadvi, M.S. in Computer Science, CSUS (Software Engineer, Intel Corporation)
- Keerthana Sambasivam, M.S. in Computer Science, CSUS (System Validation Engineer, Intel Corporation)
- Sheryl Bernard, M.S. in Computer Science, CSUS (Software Engineer, Five9)
- Amulya Aregunta, M.S. in Computer Science, CSUS (Software Engineer, Intel Corporation)
- Dixita Bhanderi, M.S. in Computer Science, CSUS (Software Engineer, Intel Corporation)
- Navya Alapati, M.S. in Computer Science, CSUS (Software Engineer, Cloudwick Technologies)
- Mukkul Jayhne, M.S. in Computer Science, CSUS (Software Engineer, FlexiVan)
- Shubham Oberoi, M.S. in Computer Science, CSUS (Firmware Development Engineer, Intel Corporation)
- Mohini Patil, M.S. in Computer Science, CSUS (Application Developer, System Soft Technologies)

- Kaustubh Raval, M.S. in Computer Science, CSUS (Software Engineer, Rubrik, Inc.)
- Masum Shah, M.S. in Computer Science, CSUS (Software Engineer, IDinsight)
- Koushik Sai Venkataramanan, M.S. in Computer Science, CSUS (Software Engineer, Tata Consultancy Services)
- Tushar Gandhi, M.S. in Computer Science, CSUS (Data Science and Automation Manager, Intel Corporation)
- Krishna Chaithanya Jarugula, M.S. in Computer Science, CSUS (Software Engineer, Intel Corporation)
- Ravali Kolli, M.S. in Computer Science, CSUS (Software Engineer, Intuit)
- Megha Mathpal, M.S. in Computer Science, CSUS (Software Engineer, Intel Corporation)
- Saritha Narahari, M.S. in Computer Science, CSUS (Software Engineer, Intel Corporation)
- Palak Patel, M.S. in Computer Science, CSUS (Software Engineer, Amazon)
- Khushal Shingala, M.S. in Computer Science, CSUS (Software Engineer, Solidigm)
- Jait Purohit, M.S. in Computer Science, CSUS (Software Engineer, SAP Labs)
- Shrreenithi Srinivasan, M.S. in Computer Science, CSUS (Software Engineer, Intel Corporation)
- Neha Vij, M.S. in Computer Science, CSUS (Software Engineer, Presidio Identity)
- Mardavkumar Gandhi, M.S. in Computer Science, CSUS (Software Engineer, Amazon)
- Anshul Jain, M.S. in Computer Science, CSUS (Software Engineer, Infosys)
- Akshada Rasam, M.S. in Computer Science, CSUS (Software Engineer, Amazon)
- Saloni Shetye, M.S. in Computer Science, CSUS (Data Engineer, Slalom)

Selected Invited Talks, Tutorials, and Presentations

Representative invited presentations, tutorials, and externally visible research dissemination activities.

1. Organized tutorials on *Contactless AI Healthcare using Cameras and Wireless Sensors* at CVPR 2023–2025.
2. Attended an NSF Broadening Participation in Computing (BPC) workshop and provided a talk at Auburn University from July 1 to July 3, July 2025.
3. Hosted an NSF Broadening Participation in Computing (BPC) workshop at FIU from July 1 to July 8. The workshop will involve 13 K-12 teachers and 8 REU students, featuring 7 talks and one wireless spectrum project.
4. "Introduction to Learning-based RF Fingerprinting," invited talk for the NSF BPC workshop at Temple University, June 2023.
5. Organized a tutorial on *Contactless health monitoring using cameras and wireless signals* at CVPR 2022.
6. Organized a tutorial on *Contactless health monitoring using wireless signals and cameras* at IEEE ICC 2022.
7. Organized a special session on *Contactless Vital Signs Monitoring for AI Health* at IEEE BHI

2021.

8. "Artificial Intelligence of Things for Robust Wireless Sensing Systems," invited talk at Auburn University, Nov. 2021.
9. "Wireless Sensing: Indoor Localization and Vital Sign Monitoring," invited talk at UC Davis ECE, Aug. 2021.
10. Organized a tutorial on *Contactless Health Monitoring with AI* at CVPR 2020.
11. Keynote speech, "On RF based Vital Sign Monitoring," International Workshop and Challenge on Computer Vision for Physiological Measurement (CVPR 2020).
12. "Indoor and Outdoor Localization Using Deep Learning," ECS D3, California State University, Sacramento, Feb. 2020.
13. "Wireless Sensing for Vital Sign Monitoring and Activity Recognition," invited talk at Bosch, Sunnyvale, CA, April 2019.
14. "Sonar Phase for Contactless Breathing Monitoring with Smartphone," ECS D3, California State University, Sacramento, Feb. 2019.
15. "RF Sensing in IoT," class and academic presentations, 2018–2020.
16. "Deep Learning for Wireless and Mobile Applications," class and academic presentations, 2019.

Patent Disclosures and Applications

1. Shiwen Mao, Xuyu Wang, and Chao Yang, "RFID-based Driving Fatigue Detection ("NodTrack")," U.S. Provisional Patent Application No. 62/855,303, May 31, 2019.
2. Shiwen Mao, Xuyu Wang, and Xiangyu Wang, "ResLoc: Deep residual sharing learning for indoor localization with CSI tensors," U.S. Provisional Patent Application No. 62/741,723, Oct. 5, 2018.
3. Shiwen Mao, Xuyu Wang, and Chao Yang, "TensorBeat: Tensor decomposition for monitoring multi-person breathing beats with commodity WiFi," U.S. Provisional Patent Application No. 62/444,598, Jan. 10, 2017 / Sept. 4, 2018.
4. Shiwen Mao, Xuyu Wang, and Renze Huang, "SonarBeat: Sonar phase for breathing beat monitoring with smartphones," U.S. Provisional Patent Application No. 62/519,336, June 14, 2017.
5. Shiwen Mao, Xuyu Wang, and Lingjun Gao, "BiLoc: Bi-modal Deep Learning for Indoor Localization with Commodity 5GHz WiFi," U.S. Provisional Patent Application No. 62/338,737, May 19, 2016.
6. Shiwen Mao, Xuyu Wang, and Chao Yang, "PhaseBeat: Exploiting CSI Phase Data for Vital Sign Monitoring with Commodity WiFi Devices," U.S. Provisional Patent Application No. 62/514,505, June 2, 2017.

Honors, Awards, and Fellowships

1. 2026 – IEEE ICNC 2026 Best Paper Award.
2. 2026 – Distinguished Member of the 2026 INFOCOM Technical Program Committee.

3. 2020-2025 – Stanford's list World Top 2% Scientists
4. 2023 – ACM FAcct 2023 Best Paper Award.
5. 2022 – 2022 Best Journal Paper Award of IEEE ComSoc eHealth Technical Committee.
6. 2022 – IEEE INFOCOM 2022 Demo Award.
7. 2022 – IEEE ICC 2022 Best Paper Award.
8. 2021 – NSF CRII Award.
9. 2020 – IEEE Vehicular Technology Society 2020 Jack Neubauer Memorial Award.
10. 2020 – IDEA Spring 2020 Award.
11. 2019 – IEEE GLOBECOM 2019 Best Paper Award.
12. 2019 – IEEE ComSoc MMTC 2018 Best Journal Paper Award.
13. 2019 – Faculty Research Incentive Grant (FRIG) Program Award.
14. 2017 – 2017 IEEE ComSoc Student Competition.
15. 2017 – IEEE PIMRC 2017 Best Student Paper Award.
16. 2017 – IEEE SECON 2017 Best Demo Award.
17. 2013–2017 – Woltosz Fellowship, Auburn University.
18. 2016 – Graduate Travel Grant for IEEE INFOCOM 2016, Auburn University Graduate School.
19. 2014 – Honorable Mention, Global Urban Datafest Hackathon, Auburn Competition.

Professional and Institutional Service

Editorial and Review Leadership

- **Associate Editor:** *IEEE Transactions on Mobile Computing* (2025–current); *Digital Communications and Networks* (2021–2022).
- **Guest/Book Editor:** Guest Editor, *ACM Transactions on Sensor Networks* Special Issue on Contact-free Smart Sensing in AIoT (2022–2023); Editor, Elsevier book *Contactless Vital Sign Monitoring* (2019–2021).
- **Journal reviewer:** Regular reviewer for *IEEE/ACM Transactions on Networking*, *IEEE Transactions on Neural Networks and Learning Systems*, *IEEE Transactions on Mobile Computing*, *IEEE Journal on Selected Areas in Communications*, *IEEE Transactions on Vehicular Technology*, *IEEE Transactions on Wireless Communications*, *IEEE Transactions on Multimedia*, *IEEE Transactions on Industrial Informatics*, *IEEE Journal of Biomedical and Health Informatics*, *IEEE Internet of Things Journal*, *Physiological Measurement*, *IEEE Access*, *IEEE Sensors Journal*, *Sensors*, *IEEE Communications Magazine*, *IEEE Network*, and *IEEE Communications Letters* (2018–present).

Conference and Professional Leadership

- **Organization roles:**
- **Organization roles:** TPC co-chair of the IEEE INFOCOM 2023–2026 Workshop on Deep Learning

for Wireless Communications, Sensing, and Security (DeepWireless); TPC co-chair of the IEEE ICC/GLOBECOM 2024–2026 Workshop on Machine Learning and Deep Learning for Wireless Security; symposium co-chair of the AI and Machine Learning for Communications and Networking (AMCN) Symposium at IEEE ICNC 2025–2026; tutorials co-chair of IEEE CCNC 2024; workshop co-chair of IEEE HealthCom 2024; demo/posters co-chair of IEEE HealthCom 2026; publicity co-chair of IEEE/ACM CHASE 2023; EDAS and Publications co-chair of IEEE MILCOM 2025; co-chair of the IEEE/ACM CHASE 2025 Workshop on Generative AI for Smart and Connected Health: Innovations, Challenges, and Applications; and co-chair of the IEEE/ACM CHASE 2026 Workshop on Generative AI for Smart Health and Biomedical Informatics.

- **Panels and agency review:** NSF Panelist (2021, 2024, and 2026 [twice]); DoE Panelist (2024); Panelist, ACM WiseML 2022.
- **TPC member:** Service on program committees for venues including IEEE WCNC, EUSIPCO, IEEE GreenCom, MobiQuitous, IEEE MASS, IEEE VTC, IEEE GLOBECOM, IEEE ICC, RWW, IEEE ICCCN, IEEE ICMLCN, AAAI, IEEE MSN, IEEE Healthcom, and IEEE INFOCOM (2018–present).
- **Session chair:** IEEE CNS 2023; IEEE/ACM CHASE 2023; IEEE MASS 2020; IEEE SECON 2019; IEEE WCNC 2015; IEEE GLOBECOM 2013.

Institutional and Community Service

- **Florida International University:** KFSCIS Seminar Series Coordinator (Fall 2024–current); KFSCIS Graduate Program Committee (Fall 2024–current); CIERTA at FIU (Fall 2024–current); Population Health Initiative (PHI) at FIU (Spring 2025–current); Ph.D. Admission Sub-Committee (Fall 2022–Summer 2024); MS-TCN Program Sub-Committee (Fall 2022–Fall 2024).
- **California State University, Sacramento:** Graduate Committee (2018–2022); ECS Scholarship Committee (2019–2022); Chair, CSC Scholarship Committee (2020–2022); Faculty Senate (2019–2022); Search Committee (2021–2022); CPE Committee (2021–2022); CSC Outstanding Student Selection Committee (Spring 2019); Sac State RCA Award Reviewer (2019–2020).
- **Student-facing/community roles:** Judge or mentor for KFSCIS Capstone Showcase, TechTogether Miami, and REU poster/demo sessions (2022–2023).

Teaching Experience

Teaching Highlights

- Taught graduate and undergraduate courses in machine learning, telecommunications, computer networks, data communications, and wireless networking at FIU and California State University, Sacramento. Overall SPOTS rating at FIU: 4.26/5 from Fall 2022-current.
- Substantially revised selected courses to integrate AI-driven wireless systems, smart sensing, networked systems, and security-oriented applications. Developed a new graduate course titled Edge Artificial Intelligence: Models, Systems, and Applications.

Courses Taught

- **Florida International University:** CAP 6619 *Advanced Topics in Machine Learning* (Spring 2025, Spring 2026); CNT 4513 *Data Communications* (Spring 2024); TCN 5010 *Telecommunications*

Technology and Applications (Spring 2023, Spring 2026); TCN 2670 *Mobile and Wireless Networks* (Fall 2022, Spring 2024, Fall 2024, Spring 2025).

- **California State University, Sacramento:** CSC 275 *Advanced Data Communication Systems* (Spring 2019, Spring 2020, Fall 2020, Spring 2021, Spring 2022); CSC 255 *Computer Networks* (Fall 2020); CSC 138 *Computer Networks and Internet* (Fall 2018, Fall 2019, Spring 2020, Fall 2020, Fall 2021, Spring 2022); CSC 130 *Data Structures and Algorithm Analysis* (Fall 2018, Spring 2019).

Selected Course Development and Revision at FIU

- **TCN 5010, FIU:** TCN 5010 syllabus was redesigned in Spring 2023, which includes the state-of-the-art telecommunications technology and applications. The course includes two hands-on homework assignments, the class project, the presentation, as well as the final exam. Specficially, students can study the top-conference paper and present it in the class, where more students will discuss the paper. Specifically, this course provides students with telecommunication fundamentals with emphasis on higher level protocols, wireless networks, and applications. Also, this course focuses on exploiting deep learning methods for data networking, wireless communications (e.g., signal and modulation, and coding), and security. Topics of this course include the state-of-the-art telecommunication techniques and applications (e.g. data networks, network and IoT security, edge computing, video streaming/analysis, federated learning, wireless systems/sensing, LTE/5G, and AI security) as well as next generation telecommunication technologies (e.g., quantum and semantic communications, satellite networks, ORAN, and metaverse).
- **CAP 6619, FIU:** CAP 6619 syllabus was redesigned in Spring 2025, which includes the state-of-the-art deep learning and real-world applications. The course includes two hands-on homework assignments, the paper presentation, as well as the class project. This course introduces the core concepts, techniques, and applications of advanced deep learning. The topics covered include cutting-edge deep learning methods, computer vision models, sequence models, meta-learning, self-supervised learning, large language models, deep generative models, federated learning, and trustworthy artificial intelligence (AI).
- **TCN 6270, FIU:** TCN 6270 syllabus was updated in Spring 2025, which includes the state-of-the-art mobile and wireless network applications. The course includes two hands-on homework assignments, the paper presentation, as well as the class project. The course provides students with fundamental concepts, principles and applications of advanced data communication, wireless, and IoT systems. Topics of this course include state-of-the-art wireless PHY layer concepts and designs, mobile computing on smartphones, smart health, wireless localization, acoustic sensing, radar sensing, Wi-Fi sensing, lower power IoT systems (e.g., RFID, and LoRa), LTE and 5G/6G, deep learning for wireless, mobile computing, and IoT applications and security, as well as mobile/edge/LLM AI systems.
- **CIS 5931, FIU:** CIS 5931 syllabus was designed in Spring 2026. This course introduces the principles, algorithms, and systems of Edge AI, focusing on the design and deployment of modern AI models on resource-constrained and distributed edge platforms. Topics include deep learning foundations, data and system challenges in Edge AI, generative models, transformers, large language models, agentic and multimodal AI, federated learning, efficient deep learning, foundation models on the edge, physics-informed AI, embodied AI, and emerging applications in wireless systems, wireless sensing, smart health, security, and privacy. Students will read and discuss recent research literature, present technical topics, and complete an individual or team project to develop an end-to-end Edge AI system.