

Yuan Xing

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EDUCATION

Ph.D., Electrical and Computer Engineering Baylor University	<i>August 2016 - May 2020</i>
M.S., Electrical and Computer Engineering University of Rochester	<i>August 2014 - May 2016</i>
B.A., Telecommunication Engineering Beijing Jiaotong University	<i>August 2010 - May 2014</i>

EMPLOYMENT EXPERIENCE

Associate Professor, Engineering & Technology Department University of Wisconsin-Stout	<i>August 2026 - Present</i>
Assistant Professor, Engineering & Technology Department University of Wisconsin-Stout	<i>August 2020 - August 2026</i>
Teaching and Research Assistant, Department of ECE Baylor University	<i>August 2016 - May 2020</i>
Research Assistant, Department of ECE University of Rochester	<i>August 2015 - May 2016</i>

TEACHING & RESEARCH INTERESTS

Artificial Intelligent(AI) System Integration, Energy-efficient System Design, Smart Manufacturing, Precision Agriculture Digital Healthcare Digital Signal Processing,

TEACHING EXPERIENCE

• CEE-205 Circuit Design and Analysis	<i>Spring 2022</i>
• CEE-225 Digital Logic Design	<i>Fall 2020 - Fall 2025</i>
• CEE-235 Signals and Systems	<i>Spring 2021 - Spring 2026</i>
• CEE-325 Digital System Design	<i>Spring 2023 - Spring 2024</i>
• CEE-425 Data Communications and Computer Networks	<i>Fall 2020 - Fall 2025</i>
• CEE-435 Digital Signal Processing	<i>Fall 2020 - Spring 2025</i>
• CEE-455 Fundamentals of Wireless Communications	<i>Spring 2021 - Spring 2026</i>
• ET-341 Electrical and Mechanical Interface Devices	<i>Fall 2024</i>
• ET-280 Static and Dynamic	<i>Fall 2025</i>
• ME-352 Introduction to Numerical Methods in Engineering	<i>Spring 2026</i>

AWARDED RESEARCH FUNDING

- UW Stout CSTEMM Copham Professorship, "AI manufacturing educational platform," \$16,500, PI
July 2026 - June 2027
- UW Stout CSTEMM Copham Professorship, "Next generation self-driving educational platform," \$16,500, PI
July 2025 - June 2026

- UW Stout Engineering and Technology Department Summer Funding, "AI-Driven Ground Station for UAV Networks: Integration into Engineering Courses to Support UW-Stout's AI Education Goals," \$10,000, Co-PI *May 2025 - August 2025*
- UW Stout Engineering and Technology Department Cervenka Summer Fellowship, "Development of real-life outdoor projects and lab curriculum for Uncrewed Aerial Systems (UAS) in collaboration with UW-Stout Facilities Management," \$7,500, Co-PI *May 2024 - August 2024*
- University of Wisconsin System Innovative Grant, "A Human-Centered Collaborative Approach to Designing an Energy-Efficient Wireless Sensor," \$175,000, PI *January 2024 - December 2025*
- Freshwater Collaborative of Wisconsin, "Developing an easy-to-apply, integrated approach to modeling freshwater contamination," \$116,832, Co-PI *September 2022 - December 2023*
- Tommy Thompson Leadership Scholarship, "Design and Implement an IoHT Ecosystem to Fight COVID-19," \$60,000, Co-PI *September 2021 - September 2022*
- Wisys Spark Grant, "AI Wireless Power Transfer System," \$9160, PI *March 2021 - March 2022*
- UW Stout Startup research funding, "AI Wireless Power Transfer," \$3,500, PI *November 2020*

PENDING RESEARCH FUNDING

- NSF TTP-P," Translating AI-Enabled Manufacturing Integration into SACA-Aligned Industry Certification and Workforce Training," \$1,000,000, PI, collaborate with Smart Automation Certification Alliance(SACA) *January 2026*

PROFESSIONAL ACTIVITIES

Conference and Poster Presentation

- 2021 IEEE CCWC(Best presenter), Virtual Conference *January 2021*
- 2021 IEEE IEMTRONICS(Best presenter), Virtual Conference *April 2021*
- 2022 IEEE CCWC, Virtual Conference *January 2022*
- 2023 IEEE CCWC, Virtual Conference *January 2023*
- 2023 3rd EMIE Conference, Guangzhou, China *January 2023*
- 2024 IEEE CCWC, Conference, Las Vegas, NV *January 2024*
- 2024 IEEE UEMCON, Conference, Yorktown Heights, NY *October 2024*
- Transforming Community and Rural Healthcare 2024, Rochester, MN *October 2024*
- 2025 IEEE WAMICON Conference, Cocoa Beach, FL *April 2025*

Student Supervision

- Timothy Lu
- Independent Study: Advanced Wireless Communication Systems. *Spring 2021*
- Giaolong Nguyen, Maxwell Lefebvre
- Wisys Spark Grant: Artificial Intelligence Wireless Power Transfer System. *Summer 2021*
- Young Riley
- Independent Study: Advanced Far-field Wireless Power Transfer Systems. *Summer 2021*
- Brandon Cedarblade, James Stevenson, Jenah Call, Jackson Butler
- Capstone Design: Wireless Power Transfer Robot. *Spring, Fall 2021*
- Cole Glassing , Wesley Larrabee, Nue Thao
- Capstone Design: The Vision-based Advanced Quadcopter Drone *Fall 2021*
- Charles Carlson
- Independent Study: AI Fast COVID-19 Detection in AWS *Spring 2022*
- Preston Leigh
- Stout Student Research Grant: Self-Driving Cars Implementations *Summer 2022*
- Evan Delueaux
- UW Stout Honors Contract: Guitar Effect Digital Signal Processing *Spring 2023*
- Sam Koland
- FCW Grant Grant: Hyperspectral Image Processing *Fall 2022, Spring 2023*

- Preston Leigh
- UW Stout Honors Contract: Disc Golf Form Review, Analysis, and Assistance *Fall 2023*
- Michael Witt
- Stout Student Research Grant: Signal Processing in Mycelium Network *Fall 2023, Spring 2024*
- Sam Edward
- Independent Study: Self-sustainable Wireless Sensor Network Deployment *Summer 2024*
- Vincent De Lorenzo
- Independent Study: Agricultural Low Inference Time Vision Detection System *Spring 2025*
- Isaac Harnack, Walker Langer
- Capstone Design: The Accuracy of Part Stress and Failure Prediction using AI *Spring 2025*
- Jack See, Aaron Post
- UW Innovation Grant: Lavendar Farm Harvesting Robot *Summer 2025*
- Connor Dean, Colter Feddersen, David
- UW Stout CSTEMM Copham Professorship: LLM Next Generation Self-driving Robot *Summer, Fall 2025*
- Ethan Morcom, Owen Moesch
- UW Stout Manufacturing Outreach Center: Agentic Vision System *Fall 2025*
- Haoyu Qian
- UW Innovation Grant: Agentic AI RAG Farm Assistance System *Fall 2025*

PROFESSIONAL MEMBERSHIP

IEEE UEMCON Conference Session Chair	2022
IEEE UEMCON Conference Technical Committee	2022, 2024
IEEE IEMTRONICS Conference Technical Committee	2023
IEEE CCWC Conference Session Chair	2023
IEEE CCWC Conference Technical Committee	2023 - 2025
IEEE AIOT Conference Technical Committee	2024

BOOK PUBLICATION

- **Y. Xing**, D.Ding, X.Ding. “AI in Manufacturing textbook,” *Cognella*. Accepted. 2025.

JOURNAL PAPERS

- **Y. Xing**, X. Ding, H. Pan. “Agentic Vision Framework for Real-Time Manufacturing Contamination Detection Using Patch-Based Lightweight Convolutional Neural Networks”, *MDPI Signals*. 7(2) 21, 2026.
- **Y. Xing**, J. Dzissah, X. Ding. “Efficient Integration of Deep Reinforcement Learning in Robotic Systems through Simplified Real-Time Command Processing”, *Computational Intelligence and Machine Learning*. 2025.
- **Y. Xing**, R. Young, G. Nguyen, M. Lefebvre, T. Zhao, H. Pan, L. Dong. “Optimal Path Planning for Wireless Power Transfer Robot Using Area Division Deep Reinforcement Learning”, *Wireless Power Transfer*. 2022.
- **Y. Xing**, H. Pan, B. Xu, T. Zhao, C. Tapparello, W. Shi, X. Liu, T. Zhao, T. Lu. “Optimal Wireless Information and Power Transfer Using Deep Q-Network”, *Hindawi Wireless Power Transfer*. 2021.
- **Y. Xing**, Y. Qian and L. Dong. “A Multi-Armed Bandit Approach to Wireless Information and Power Transfer”, *IEEE Communication Letters*. 24(4): 886-889. 2020.
- Y. Bao, M. Arifuzzaman, TD. Le, T. Jiang, J. Hou, **Y. Xing**, D. Hou. “A Convergent Method for Energy Optimization in Modern Hopfield Networks”, *MDPI Big Data and Cognitive Computing* 10(3), 71. 2026.
- Y. Bao, I. Huang, Q. Li, Z. Zhang, **Y. Xing**, D. Hou, J. Ye. “A framework for modeling county-level COVID-19 transmission”, *Frontiers in Public Health*. 13, 1608360. 2025.

- Y Tian, Z Zeng, **Y. Xing**. “A review of discrete element method applications in soil–plant interactions: challenges and opportunities”, in *Agriculture*. 14(9): 1486. 2024.
- L. Dong, Y. Qian, **Y. Xing**. “Dynamic spectrum access and sharing through actor-critic deep reinforcement learning”, *EURASIP Journal on Wireless Communication and Networking*. 2022(1), 48. 2022.
- W. Shi, X. Liu, **Y. Xing**. “Internet of Things Applied on Assistive Robotics”, *International Journal on Engineering, Science and Technology* 3(1), 67-71. 2021.

CONFERENCES PAPERS

- **Y. Xing**, A. Verma, C. Liu, H. Pan, D. Ding, H. Qian, Y. Bao, W. Yao, C. Feddersen, C. Dean. “HiMAP: Hierarchical Human-in-the-Loop Multi-Agent Reinforcement Learning for Collaborative Path Planning”, *2026 IEEE World AI IoT Congress (AIIoT)*, 0050-0056. 2026.
- **Y. Xing**, D.Ding, X.Ding. “Adaptive RWA Token Pricing Using Reinforcement Learning: Enhancing Decision Support in SAP ERP Systems”, *2025 Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)*., 0008-0013. 2025.
- **Y. Xing**, J. See, J. Dzissah, A. Verma, C. Liu. “HierCharge: Low-Complexity Hierarchical Optimization for Scalable IoT Energy Solution *2025 26th IEEE Wireless and Microwave Technology Conference(WAMICON) (pp. 1-4)*. 2025.
- **Y. Xing**, A. Verma, Z. Zeng, C. Liu, T. Lee, D. Hou, H. Pan, S. Edwards. “Cluster-Based Genetic Algorithm Path Planning for Cooperative UGV and UAV Operations in Energy-efficient Wireless Sensor Networks”, *2024 IEEE 15th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON) (pp. 58-65)*. 2024.
- **Y. Xing**, Z. Zeng, A. Verma, C. Liu, T. Lee, D. Hou, H. Pan, S. Edwards, W. Stehr. “Optimizing Grass Selection for Beef Cattle Using Multi-Armed Bandit Algorithms: A Data-Driven Approach to Enhance Growth Through Rumination Analysis”, *2024 IEEE 15th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON) (pp. 7-12)*. 2024.
- **Y. Xing**, Z. Zeng, C. Liu, A. Verma, T. Lee, D. Hou, H. Pan, S. Edwards. “Optimizing Sleep Schedules for Energy-Efficient Agricultural Wireless Sensor Networks Using Deep Reinforcement Learning”, *2024 IEEE 15th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON) (pp. 66-72)*. 2024.
- **Y. Xing**, J. Hou, J. Liu, A. Verma, H. Yuan. “Deep Learning and Game Theory for AI-Enabled Human-Robot Collaboration System Design in Industry 4.0”, *IEEE 2024 Computing and Communication Workshop and Conference (CCWC) (pp.8-13)*. 2024.
- **Y. Xing**, A. Verma. “Optimize Path Planning for Drone-Based Wireless Power Transfer System by Categorized Reinforcement Learning”, *IEEE 2023 Computing and Communication Workshop and Conference (CCWC) (pp. 641-646)*. 2023.
- **Y. Xing**, R. Young, G. Nguyen, M. Lefebvre. “Optimize Mobile Wireless Power Transfer by Finite State Machine Reinforcement Learning”, *2022 IEEE Computing and Communication Workshop and Conference (CCWC) (pp. 507-512)*. 2022.
- **Y. Xing**, H. Yuan, C. Carson. “Optimize Path Planning for UAV COVID-19 Test Kits Delivery System by Hybrid Reinforcement Learning”, *2022 IEEE Computing and Communication Workshop and Conference (CCWC) (pp. 177-183)*. 2022.
- **Y. Xing**, R. Young, G. Nguyen, M. Lefebvre. “Optimization of Transmission Strategy for Wireless Power Transfer Using Multi-Armed Bandit Algorithm”, *2021 IEEE 12th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON) (pp. 646-650)*. 2021.
- **Y. Xing**, H.Pan, B. Xu, T. Zhao, C. Tapparello, Y. Qian. “Multiuser Data Dissemination in OFDMA System Based on Deep Q-Network”, *2021 IEEE International IOT, Electronics and Mechatronics Conference (IEMTRONICS) (pp. 1-6)*. 2021.
- **Y. Xing**, Y. Qian, W. Shi, X. Liu, T. Zhao, C. Tapparello. “Deep Learning for Optimized Multiuser OFDMA Energy-Efficient Wireless Transmission”, *2021 IEEE Computing and Communication Workshop and Conference (CCWC) (pp. 578-584)*. 2021.

- **Y. Xing**, Y. Qian, L. Dong,. “Deep learning for optimized wireless transmission to multiple RF energy harvesters”, *IEEE 88th Vehicular Technology Conference(VTC Fall)* (pp. 1-5). 2018.
- **Y. Xing**, C. Tapparello,. “Dynamic fountain codes for energy efficient data dissemination in underwater sensor networks”, *IEEE OCEANS–Anchorage* (pp. 1-6). 2017.
- **Y. Xing**, L. Dong,. “Passive radio-frequency energy harvesting through wireless information transmission”, in *IEEE Distributed Computing in Sensor Systems(DCOSS)* (pp. 73-78). 2017.
- P. Leigh, **Y. Xing**. “Evaluation of Multiple Convolutional Neural Networks in Training the NVIDIA JetBot”, *2022 IEEE 13th Annual Ubiquitous Computing, Electronics Mobile Communication Conference (UEMCON)* (pp. 524-530). 2022.
- Y. Qian, **Y. Xing**, and L. Dong,. “Deep Learning for a Low-data Drug Design System”, *2020 IEEE International Conference on E-health Networking, Application Services (HEALTHCOM)* (pp. 1-4). 2020.
- Y. Qian, **Y. Xing**, L. Dong,. “Deep Learning for Radio-Frequency Energy Harvesting with Multiple Wireless Transmitters”, in *IEEE 88th Vehicular Technology Conference(VTC Fall)* (pp. 1-2). 2018.
- Y. Qian, **Y. Xing**, L. Dong,. “Wireless transmission design with neural network for radio-frequency energy harvesting”, in *2018 IEEE Wireless Communications and Networking Conference (WCNC)* (pp. 1-6). 2018.

PROFESSIONAL SERVICE

Department

- CEE Program Advisory Committee – Member *Fall 2020 - Present*
- Capital Budget Committee – Member *Fall 2022, Fall 2023*
- Cervenka Fellowship Committee – Member *Spring 2022, Spring 2025*
- Search Committee for CEE Technologist – Member *2022 - 2023*
- Search Committee for Industry 4.0 Lecturer – Chair *2023*
- Search Committee for ME faculty position – Chair *2024 - 2025*

Student Competitions

- SkillsUSA Urban Search and Rescue Competition – Judge *2022 - 2024*
- DKC³ Collegiate Computing Competition – Advisor/Mentor *2022 - Present*
 - October 2023: Students achieved 2nd place (3,000 cash prize)
 - October 2024: Students achieved 1st place (5,000 cash prize)

Student Organizations

- UW Stout AI Club – Founding Advisor and Mentor *2024 - Present*
 - February 2025: Supervised AI club presentation at UW–Madison to Board of Regents

Community

- UW Stout Appreciation Week *2023*
- International Students AI Summer Camp – Instructor *June, July 2024*
- Boys and Girls Club of Greater Chippewa Valley – STEM AI Seminar Presenter *July 2024*
- UW System Innovation Precision Agricultural Workshop *October 2024*
- VIP Demonstrations – Presenter *2024 - 2025*

- Demonstrated AI vision system to distinguished visitors at UW Stout
- Wisconsin Governor Tony Evers;
- Congressman Derrick Van Orden;
- USDA Under Secretary Alex Taylor;
- WI Agriculture Secretary Randy Romanski;
- Sleep Number CEO Shelly R. Ibach
- AI Vision System Demonstration – Presenter *February 2025*
- Polytech Day – AI Digital Signal Processing Seminar Presenter *April 2025*