Yuanyuan Zhang

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EDUCATION

- 2020.10 - 2023.04 Shanghai Maritime University (PhD)
  Major: Traffic information engineering and control
  Advisor: Huafeng Wu, Pro. Dr.
- 2021.09 - 2022.09 University of Victoria (Visiting PhD student)
  Major: Electrical and Computer Engineering
  Advisor: T. Aaron Gulliver, Pro. Dr.
- 2017.09 - 2020.06 Shanghai Maritime University (Master)
  Major: Traffic information engineering and control
  Advisor: Huafeng Wu, Pro. Dr.
- 2013.09 - 2017.06 Jiangsu University of Technology (Bachelor)
  Major: Electronic Information Engineering
- 2014.09 - 2017.06 Jiangsu University of Technology (Bachelor)
  Major: Business English

WORK EXPERIENCE

- 2023.5 - present Lecturer, Changzhou Institute of Technology

RESEARCH INTERESTS

- Wireless Communications, signal processing
- Wireless and Underwater Sensor Networks
- Target Localization, and Tracking
- Deep Learning and Intelligent Optimization

PROJECTS

PRINCIPLE INVESTIGATOR

- Research on Key Technologies of Localization and Tracking in Ocean Sensor Networks, Grant No. CJ20240068 **(Sponsored by Changzhou Science and Technology Committee)**
- Application of Underwater Acoustics and Wireless Sensor Network in Transportation, Grant No. 202108310196 **(Sponsored by China Scholarship Council)**

PARTICIPATION

- Theory and Key Technologies for Optimal Dynamic Deployment of Polar Situational Awareness Cluster System, Grant No. 52331012 **(Sponsored by Natural Science Foundation of China)**
- Research on Key Technologies and System Development of Communication and Navigation Support in the Arctic waterway, Grant No.2021YFC2801002 **(Sponsored by National Ministry of Science and Technology)**
- Dynamic Self-adaptive Clustering Based Intelligent Data Prediction and Reconstruction in Ocean Sensor Networks, Grant No. 52071200 **(Sponsored by Natural Science Foundation of China)**
- Research on Key Technologies of Distributed Estimation and Optimization of Marine Intelligent Clustered Sensor Networks Based on Deep reinforcement learning, Grant No. 23010502000 **(Sponsored by Shanghai Science and Technology Committee)**
- Three-Dimensional Dynamic Cooperative Localization Mechanism of Marine Sensor Networks Based on Wave Shadowing Effect Model, Grant No. 51579143 **(Sponsored by Natural Science Foundation of China)**
- Coastal Meteorological Monitoring and Warning System Based on Buoy Internet of Things and Its Navigation Aid Application, Grant No. 18040501700 **(Sponsored by Shanghai Science and Technology Committee)**

PUBLICATION

Journal publications

1. **Y. Zhang**, J. Li, T. A. Gulliver, H. Wu, G. Xie, X. Mei, J. Xian, W. Wang, L. Liang, "Metaheuristic Optimization for Robust RSSD-Based UAV Localization with Position Uncertainty, " *Drones*, vol. 9, no. 2, p. 147, 2025. (SCI, JCR Q1, IF: 4.4)
2. **Y. Zhang**, T. Aaron Gulliver, H. Wu, X. Mei, J. Li, F. Lu, W. Wang, "An Efficient Estimator for Source Localization in WSNs using RSSD and TDOA Measurements, " *Pervasive and Mobile Computing*, vol. 102, art. 101936, 2024. (SCI, JCR Q2, IF: 4.3)
3. **Y. Zhang**, H. Wu, T. Aaron Gulliver, X. Li, J. Li, J. Xian, W. Wang, "Real-Time RSS-based Target Localization for UWSNs using an IDE-BP Neural Network," *Journal of Supercomputing*, 2024, doi: 10.1007/s11227-024-06245-z. (SCI, JCR Q2, IF: 3.3)

4. **Y. Zhang**, H. Wu, T. Aaron Gulliver, J. Xian, L. Liang, “Improved Differential Evolution for RSSD-Based Localization in a Gaussian Mixture Channel,” *Computer Communications*, vol. 206, pp. 51–59, 2023. (SCI, JCR Q1, IF: 6.0)
5. **Y. Zhang**, H. Wu, T. Aaron Gulliver, J. Xian, W. Wang, “Fast Multi-Target Localization of RSSD in Wireless Sensor Networks,” *Transactions of the Institute of Measurement and Control*, 2023, doi: 10.1177/01423312221148787. (SCI, JCR Q3, IF: 1.8)
6. **Y. Zhang**, H. Wu, X. Mei, L. Liang, T. Aaron Gulliver, “Unknown Transmit Power RSSD Based Localization in a Gaussian Mixture Channel,” *IEEE Sensors Journal*, vol. 22, no. 9, pp. 9114-9123, 2022. (SCI, JCR Q1, IF: 4.3**)**
7. **Y. Zhang**, H. Wu, X. Mei, J. Xian, W. Wang, Q. Zhang, L. Liang, “Two-Phase Robust Target Localization in Ocean Sensor Networks Using Received Signal Strength Measurements,” *Sensors*, vol. 21, no. 5, p. 1724, 2021. (SCI, JCR Q2, IF: 3.9)
8. **Y. Zhang**, H. Wu, J. Xian, and X. Mei, “Adaptive clustering algorithm in Ocean Wireless Sensor Network under double constraints,” *Computer Engineering Application*, vol. 19, no. 55, pp. 128–133, 2019. (EI)
9. H. Wu, **Y. Zhang**, J. Wang, W. Wang, J. Xian, J. Chen, X. Zhou, P. Mohapatra, “iOceanSee: A Novel Scheme for Ocean State Estimation Using 3D Mobile Convolutional Neural Network,” *IEEE Access*, vol. 8, pp. 153774-153786, 2020. (SCI, JCR Q2, IF: 3.9)
10. J. Li, **Y. Zhang**, L. Shen, J. Cao, W. Xie, Y. Zheng, S. Liu, "An Efficient and Secure Authentication Scheme with Session Key Negotiation for Timely Application of WSNs," *KSII Transactions on Internet and Information Systems*, vol. 18, no. 3, pp. 801-825, 2024. (SCI, JCR Q4, IF: 1.5)
11. H. Wu, L. Liang, X. Mei, **Y. Zhang**, "A Convex Optimization Approach for NLOS Error Mitigation in TOA-Based Localization," *IEEE Signal Processing Letters*, vol. 29, pp. 677-681, 2022. (SCI, JCR Q2, IF: 3.9)
12. W. Wang, H. Wu, X. Kong, **Y. Zhang**, Y. Ye, Z. Zeng, J. Cheng, Q. Zhang, "Reinforcement Learning-based Dynamic Position Control of Mobile Node for Ocean Sensor Networks," *Transactions of the Institute of Measurement and Control*, vol. 44, no. 4, pp. 926-940, 2022. (SCI, JCR Q3, IF: 2.146)
13. J. Xian, H. Wu, X. Mei, **Y. Zhang**, X. Chen, Q. Zhang, L. Liang," Novel Energy-Efficient Opportunistic Routing Protocol for Marine Wireless Sensor Networks Based on Compressed Sensing and Power Control," *Journal of Ocean University of China*, vol. 21, no. 6, pp. 1504–1516, 2022. (SCI, JCR Q3, IF: 1.6)
14. J. Xian, H. Wu, X. Mei, **Y. Zhang**, H. Chen, J. Wang, “NMTLAT: A New robust mobile Multi-Target Localization and Tracking Scheme in marine search and rescue wireless sensor networks under Byzantine attack,” *Computer Communications*, vol. 160, pp. 623–635, 2020. (SCI, JCR Q1, IF: 6.0)
15. H. Wu, J. Xian, X. Mei, **Y. Zhang**, J. Wang, J. Cao, and P. Mohapatra, “Efficient target detection in maritime search and rescue wireless sensor network using data fusion,” *Computer Communications*, vol. 136, pp. 53–62, 2019. (SCI, JCR Q1, IF: 6.0)
16. J. Ma, J. Xian, H. Wu, Y. Yang, X. Mei, **Y. Zhang**, X. Chen, C. Zhou, "Novel High-Precision and High-Robustness Localization Algorithm for Underwater-Environment-Monitoring Wireless Sensor Networks," *Journal of Marine Science and Engineering*, vol.

11, no. 9, p. 1713, 2023. (SCI, JCR Q1, IF: 2.9)

17. J. Xian, J. Ma, H. Wu, X. Mei, F. Tan, **Y. Zhang**, X. Chen, W. Wang, "Coarse-to-Fine Localization Method for UASNs under Unknown Multi-Parameters, " *Control and Decision*, 2024, doi: 10.13195/j.kzyjc.2024.0521. (EI)
18. J. Xian; Z. Li; H. Wu, W. Wang, X. Chen, X. Mei, **Y. Zhang**, B. Han; J. Ma, "Novel Polarization Construction Method and Synchronization Algorithm for Underwater Acoustic Channel under T-distribution Noise Environment," *Journal of Marine Science and Engineering*, vol. 13, no. 2, p. 362, 2025. (SCI，JCR Q1， IF：2.7)
19. X. Mei, F. Miao, W. Wang, H. Wu, B. Han, Z. Wu, X. Chen, J. Xian, **Y. Zhang**, Y. Zang, "Enhanced Target Localization in the Internet of Underwater Things through Quantum-Behaved Metaheuristic Optimization with Multi-Strategy Integration," *Journal of Marine Science and Engineering*, vol. 12, no. 6, p. 1024, 2024. (SCI, JCR Q1, IF: 2.9)

Conference publications

1. J. Xian, Z. Li, H. Wu, X. Mei, X. Chen, **Y. Zhang**, L. Liang, Qi. Zhang, and W. Wang "A novel polar codes construction method for OFDM hydroacoustic communication system under t-distribution noise", *Proc. SPIE 13542, Fourth International Computational Imaging Conference (CITA 2024),* 135423S (25 February 2025).
2. X. Mei, H. Wu, J. Xian, H. Zhang, and **Y. Zhang**, "A Robust Localization with Outlier Measurements in Underwater Sensor Networks", *Proceedings of the 2019 Academic Conference of the Chinese Acoustics Society Hydroacoustic Branch*, Nanjing, China.

MANUSCRIPTS IN PREPARATION/SUBMITTED FOR REVIEW

1. **Y. Zhang**, et. al, "Bias Mitigation for RSSD-Based Localization under Byzantine Attacks," (under review)
2. **Y. Zhang**, et. al, "RSSD Based 3-D Localization under Spoofing Attacks for Internet of Underwater Things," (In preparation)
3. **Y. Zhang**, et. al, "Maximum Correntropy Criterion Based Target tracking in NLOS UWSNs" (In preparation)
4. **Y. Zhang**, et. al, "A RSSD/TDOA Based Bias Compensation Technique for Source Localization with Corrupted Signals" (In preparation)
5. **Y. Zhang**, et. al, "An improved CNN for Robust Source Localization in a mixed LOS and NLOS environment" (In preparation)
6. **Y. Zhang**, et. al, "A Novel RSSD Localization Network with Uncertainty in Path Loss Exponent" (In preparation)

PATENTS

1. **Y. Zhang**, J. Li, P. Wang et al, "A Robust Positioning Method for Wireless Sensor Networks with Uncertain Anchor Position" CN Patent, 202410569694.4. (Submitted).

2. **Y. Zhang**, J. Li, L. Gu et al, "A Method and System for Constructing Efficient Estimator for Source Localization based on Mixed Measurement Information" CN Patent, 202410434928.4. (Submitted).
3. H. Wu, **Y. Zhang**, "An Estimation Method and Device of Wave Parameter", CN Patent, 202010994654.6. (Granted)
4. H. Wu, **Y. Zhang** et al, "A Real-time Underwater Acoustic Positioning Algorithm based on the IDE-BP Neural Network", CN Patent, 202310306368.X (Substantive examination)
5. H. Wu, **Y. Zhang** et al, "A RSSD localization method in Gaussian mixture noise environment", CN Patent, 202211551709.1 (Substantive examination)
6. H. Wu, **Y. Zhang** et al, "A Multi-Target Positioning Method, Device, and Medium for Alleviating Non-line-of-sight effects", CN Patent, 202211575091.2 (Substantive examination)
7. L. Gu, B. Chen, **Y. Zhang** et al, "A Full-node Detection Method for Brain Functional Network based on Random Matrix Analysis" CN Patent, 202410929069.6. (Submitted).
8. J. Xian, J. Ma, H. Wu, Y. Yang, **Y. Zhang** et al, "A Method and Device for Reconstructing Lost Data in a Marine Wireless Sensor Network", CN Patent, 202310897506.6. (Substantive examination)
9. H. Wu, J. Xian, X. Mei, X. Chen, **Y. Zhang** et al, "An Opportunistic Routing Protocol for Maritime Wireless Sensor Networks", CN Patent, 202111020086.0 (Substantive examination)
10. J. Xian, J. Ma, H. Wu, X. Mei, W. Wang, **Y. Zhang** et al, "A Highly Reliable and Robust Routing Method for Maritime Search and Rescue Wireless Sensor Networks", CN Patent, 202311207371.2 (Substantive examination)
11. J. Xian, J. Ma, H. Wu, Y. Yang, X. Mei, X. Chen, and **Y. Zhang**, "A Marine Search and Rescue Wireless Sensor Network Communication Method, Device and Storage Medium", CN Patent, 202210840637.6. (Substantive examination)

HONOR AND AWARDS

- **2023 Outstanding Research Award**
  Awarded by Shanghai Maritime University for Paper entitled: "Improved Differential Evolution for RSSD-Based Localization in a Gaussian Mixture Channel."
- **2022 Outstanding Research Award**
  Awarded by Shanghai Maritime University for Paper entitled: "Unknown Transmit Power RSSD Based Localization in a Gaussian Mixture Channel."
- **2021 First Class Scholarship**
  Awarded by Shanghai Maritime University, Office of Graduate Studies.
- **2021 National Study Abroad Fund**
  Awarded by China Scholarship Council (CSC).
- **2020 Principal Scholarship**

Awarded by Shanghai Maritime University, Office of Graduate Studies.

- **2019 Second Class Scholarship**
  Awarded by Shanghai Maritime University, Office of Graduate Studies.
- **2018 Second Prize of Postgraduate's Forum of Shanghai**
  Awarded by Shanghai Graduate Academic Forum Academic Committee.
- **2017 Outstanding Graduate**
  Awarded by Jiangsu University of Technology.
- **2017 Learning Model**
  Awarded by School of Electrical and Information Engineering, Jiangsu University of Technology.
- **2016 First Class Scholarship**
  Awarded by Jiangsu University of Technology.
- **2015 Second Prize in the Jiangsu Division of Mathematical Modeling for National Undergraduates**
  Awarded by Chinese Society of Industry and Applied mathematics.
- **2014 Outstanding Student Leaders**
  Awarded by Jiangsu University of Technology.
- **2014 First Class Scholarship**
  Awarded by Jiangsu University of Technology.

PROFESSIONAL AFFILIATIONS AND SERVICES

- China Computer Federation Member
- China Highway& Transportation Society Member
- Reviewer of IEEE Transactions on Signal and Information Processing over Networks
- Reviewer of IEEE Transactions on Vehicular Technology
- Reviewer of IEEE Signal Processing Letters
- Reviewer of Journal of Supercomputing
- Reviewer of Concurrency and Computation: Practice and Experience
- Reviewer of IEEE Sensors Letters
- Reviewer of Sensors
- Reviewer of Electronics