

# Jingxiang Qu

**Age:** 23 | **Nation:** China | **Homepage:** <https://tom-jxqu.netlify.app/> | **Mail:** tom.jxqu@gmail.com

**Research Interests:** Multimodal Learning, Graph Learning.

Advised by Prof. Ryan Wen Liu, School of Navigation, Wuhan University of Technology.

**Language:** Mandarin (Native Speaker), English (TOEFL 92, GRE 321: V 151, Q 170)

## EDUCATION

**Jiangsu University of Science and Technology** Zhenjiang, China | 2017.09-2021.06

Bachelor of Engineering (Internet of Things Engineering)

♦ GPA: 3.42 / 4.0 Ranking: Top 01 / 35

**Wuhan University of Technology** Wuhan, China | 2021.09-2024.06

Master of Engineering (Traffic Information Engineering and Control)

♦ GPA: 3.65 / 4.0 Ranking: Top 01 / 41

## PUBLICATIONS

### Journals:

- **Qu, J.**, Liu, R. W., Zhao, C., Guo, Y., Xu, S. S. D., Zhu, F., & Lv, Y. (2023). Multi-Task Learning-Based Automatic Vessel Draft Reading for Intelligent Maritime Surveillance. *IEEE Transaction on Intelligent Transportation System (IEEE T-ITS)*. (**JCR Q1, IF: 8.5**)
- **Qu, J.**, Liu, R. W., Gao, Y., Guo, Y., Zhu, F., & Wang, F. Y. (2023). Double Domain Guided Real-Time Low-Light Image Enhancement for Ultra-High-Definition Transportation Surveillance. *IEEE Transaction on Intelligent Transportation System (IEEE T-ITS)*. (**JCR Q1, IF: 8.5**)
- **Qu, J.**, Gao, Y., Lu, Y., Xu, W., & Liu, R. W. (2023). Deep learning-driven surveillance quality enhancement for maritime management promotion under low-visibility weathers. *Ocean & Coastal Management*. vol. 235, 106478. (**JCR Q1, IF: 4.6**)
- **Qu, J.**, Liu, R. W., Guo, Y., Lu, Y., Su, J., & Li, P. (2023). Improving maritime traffic surveillance in inland waterways using the robust fusion of AIS and visual data. *Ocean Engineering*. vol. 275, 114198. (**JCR Q1, IF: 5.0**)
- Guo, Y., Liu, R. W., **Qu, J.**, Lu, Y., Zhu, F., & Lv, Y. (2023). Asynchronous Trajectory Matching-Based Multimodal Maritime Data Fusion for Vessel Traffic Surveillance in Inland Waterways. *IEEE Transaction on Intelligent Transportation System (IEEE T-ITS)*. vol. 24, pp. 12779 - 12792. (**JCR Q1, IF: 8.5**)
- Zhao C., Liu, R. W., **Qu, J.**, Gao, R. (2023). Deep Learning-Based Object Detection in Maritime Unmanned Aerial Vehicle Imagery: Review and Experimental Comparisons. *Engineering Applications of Artificial Intelligence (EAAI)* vol. 128, 107513. (**JCR Q1, IF: 8.0**)
- Guo, Y., Lu, Y., **Qu, J.**, Liu, R. W., & Ren, W. (2022). MDSFE: Multi-scale Deep Stacking Fusion Enhancer Network for Visual Data Enhancement. *IEEE Transactions on Instrumentation and Measurement (IEEE T-IM)*. vol. 72, pp. 1 - 12. (**JCR Q1, IF: 5.6**)

### Conferences:

- **Qu, J.**, Guo, Y., Lu, Y., Zhu, F., Huan, Y., & Liu, R. W. (2022). Intelligent maritime surveillance framework driven by fusion of camera-based vessel detection and AIS data. In *2022 IEEE 25th International Conference on Intelligent Transportation Systems (ITSC)*.
- **Qu, J.**, Liu, R. W., Nie, J., Deng, X., Xiong, Z., Zhang, Y., ... & Niyato, D. (2022). Edge Computing-Enabled Multi-Sensor Data Fusion for Intelligent Surveillance in Maritime Transportation Systems. In *2022 IEEE Intl Conf on Dependable, Autonomic and Secure Computing (DASC)*.
- Li, X., Lu, Y., Guo, Y., **Qu, J.**, & Liu, R. W. (2022). Rep-Enhancer: Re-parameterizing Neural Network for Real-time Low-light Enhancement in Visual Maritime Surveillance. In *2022 IEEE 20th International Conference on Embedded and Ubiquitous Computing (EUC)*.

- Guo, Y., Gao, Y., Liu, W., Lu, Y., **Qu, J.**, He, S., & Ren, W. (2023). SCANet: Self-Paced Semi-Curricular Attention Network for Non-Homogeneous Image Dehazing. In *Proceedings of the IEEE conference on computer vision and pattern recognition workshops (CVPRW)*.

#### Patents:

- Liu, R. W., **Qu, J.**, Guo, Y., Bao, M., Zhao, C. Tracking and identification methods, devices, electronic devices, and storage media for multiple ship targets. ZL 202310387654.3, *CN Patent*.
- Liu, R. W., **Qu, J.**, Zhao, C., Zhang, Y., Guo, Y. Automatic detection method and device for ship draft. ZL 202310655189.7, *CN Patent*.

## RESEARCH EXPERIENCES

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### Intelligent Waterway Monitoring System on Navigation Locks | In charge 2022.06-2023.03

- Developing an intelligent monitoring system for navigation locks, which achieves vessel detection, vessel name recognition, vessel draft reading, and vessel identification.
- Proposing a multi-task learning-enabled automatic vessel draft reading method (MTL-VDR). It achieves accurate vessel draft reading with error less than 0.1 meter.

### National Natural Science Foundation of China (No.: 52271365) | Technical Support 2023.01-2026.12

- Proposing a versatile model for enhancing the maritime surveillance data under low-visibility weather, including both low-light and hazy weathers.
- Developing a multi-sensor data fusion-based AR vessel navigation system to enhance the captain's ability of navigational environmental perception. The system has been applied on several vessels.

### National Key R&D Program of China (No.: 2022YFB4300300) | Technical Support 2022.12-2026.11

- Proposing a double domain guided low-light enhancement network for UHD transportation surveillance, which enhances the UHD images effectively with the speed over 40 FPS.

## WORK EXPERIENCES

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### Zhejiang Sunglory Marine Technology Co., Ltd: | Algorithm Development Engineer 2022.06-2022.08

- Developing a multi-sensor data fusion-based intelligent vessel navigation system, which has been applied on multiple vessels in Zhejiang Province, China.

## HONORS & AWARDS

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- **Graduate Student National Scholarship 1%** (2023)
- **The First Prize**, Graduate Academic Seminar on "Intelligent Navigation and Qualified Mariner Training" (2023)
- **The Third Prize**, The 5<sup>th</sup> China Postgraduate Robot Innovation and Design Competition (2023)
- **The Third Prize**, The 19<sup>th</sup> China Post-Graduate Mathematical Contest in Modeling (2022).
- **The First Prize**, The 11<sup>st</sup> National Marine Vehicle Design and Production Competition (2022)
- **University Outstanding Postgraduate**. Wuhan University of Technology (2022).
- **Graduate Students' First-Class Scholarship**. Wuhan University of Technology (2022).
- **University Outstanding Graduate**. Jiangsu University of Science and Technology (2021).
- **The Third Prize**, The 13<sup>rd</sup> Chinese Collegiate Computing Competition (2020)
- **University Outstanding Cadre**. Jiangsu University of Science and Technology (2018-2019).

## SKILLS

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- **Computer:** Microsoft Excel, PowerPoint, Word, Visio, Origin.
- **Programming:** Python (Pytorch), C++, C# (Unity3D).