Jingxiang Qu

Age：23 | **Nation**：China | **Homepage:** https://tom-jxqu.netlify.app/ | **Mail**：qujx@whut.edu.cn

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)

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., et al. Multi-Task Learning-Based Automatic Vessel Draft Reading for Intelligent Maritime Surveillance. *IEEE Transaction on Intelligent Transportation System (IEEE T-ITS)*. **(JCR Q1, IF: 9.551, Accept)**
- **Qu, J.**, Liu, R. W., Gao, Y., et al. 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: 9.551, Minor Revision)**
- **Qu, J**., Gao, Y., Lu, Y., *et al.* (2023). Deep learning-driven surveillance quality enhancement for maritime management promotion under low-visibility weathers. *Ocean & Coastal Management*. vol. 235, 106478. **(JCR Q1, IF: 4.295)**
- **Qu, J.,** Liu, R. W, Guo Y., et al. (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: 4.372)**
- Guo Y., Liu, R. W., **Qu, J.**, et al. (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)*. **(JCR Q1, IF: 9.551)**
- Guo, Y., Lu, Y., **Qu, J.**, et al. (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: 5.332)**

Conferences:

- **Qu, J.**, Guo, Y., Lu, Y., et al. 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., et al. 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. 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., Lu, Y., **Qu, J.**, et al. "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.,** et al. Tracking and identification methods, devices, electronic devices, and storage media for multiple ship targets. 202310387654.3*, CN Patent.*
- Liu, R. W., **Qu J.,** et al. Automatic detection method and device for ship draft. 202310655189.7, *CN Patent.*

RESEARCH EXPERIENCES

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. Both the effect and efficiency can satisfy the requirements of real-time maritime surveillance.
- Developing a multi-sensor data fusion-based AR vessel navigation system. It enhances the captain's ability of navigational environmental perception. The system has been applied on several vessels for testing. It significantly promotes the navigation safety in waterway transportation system.

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.

National Key R&D Program of China (No.: 2022YFC3302700) | **Technical Support** *2022.10-2025.09*

- Proposing an anti-occlusion vessel tracking algorithm and an AIS/visual data fusion method, which achieves intelligent maritime surveillance with multiple vessel identification.

HONORS & AWARDS

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

SKILLS

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

WORK EXPERIENCES

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 tested and applied on the vessel.