

Yaming Ou

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EDUCATION

Institute of Automation, Chinese Academy of Sciences (Top 69 in 2024-2025 USNews Ranking)

Beijing, China

PhD, Control Science and Engineering

Sep. 2021 - Present

- **Supervisor:** Prof. Chao Zhou & Prof. Junfeng Fan
- **Research Interests:** SLAM, Multi-sensor Fusion, Robot Exploration, Navigation
- **PhD Project:** Dense SLAM Research for Underwater Robots Based on Multi-modal Information Fusion
- **Modules:** Robotics (95/100), Matrix Analysis and Applications (94/100), Deep Learning (93/100), etc.

Southeast University (985, Double First-Class University)

Nanjing, China

Bachelor of Engineering, Robot Engineering (Top 3 in China)

Sep. 2017 - Jun. 2021

- **Ranking:** 2/34, Outstanding Graduate Award
- **Modules:** Higher Mathematics (95/100), Geometry & Algebra (98/100), C++ Data Structure (98/100), etc.

PUBLICATIONS

📌 Journal Papers

- [1] **Ou Y**, Fan J, et al. **Hybrid-VINS: Underwater Tightly-Coupled Hybrid Visual Inertial Dense SLAM for AUV**[J]. IEEE Transactions on Industrial Electronics, 2024. [\[Link\]](#) (JCR Q1, IF 7.5)
- [2] **Ou Y**, Fan J, Zhou C, et al. **Structured Light-Based Underwater Collision-Free Navigation and Dense Mapping System for Refined Exploration in Unknown Dark Environments**[J]. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2024. [\[Link\]](#) (JCR Q1, IF 8.6)
- [3] **Ou Y**, Fan J, Zhou C, et al. **Water-MBSL: Underwater Movable Binocular Structured Light-Based High-Precision Dense Reconstruction Framework**[J]. IEEE Transactions on Industrial Informatics, 2023. [\[Link\]](#) (JCR Q1, IF 11.7)
- [4] **Ou Y**, Fan J, Zhou C, et al. **Binocular Structured Light 3-D Reconstruction System for Low-light Underwater Environments: Design, Modeling, and Laser-based Calibration**[J]. IEEE Transactions on Instrumentation and Measurement, 2023. [\[Link\]](#) (JCR Q1, IF 5.6)
- [5] Fan J, **Ou Y***, Li X, et al. **Structured Light Vision Based Pipeline Tracking and 3D Reconstruction Method for Underwater Vehicle**[J]. IEEE Transactions on Intelligent Vehicles, 2023. [\[Link\]](#) (JCR Q1, IF 14.0, Corresponding Author)

📌 Conference Papers

- [1] **Ou Y**, Zhang Z, et al. **Data Calibration Algorithm for Artificial Lateral Line Sensor of Robotic Fish on Improved LSTM**[C]//2021 40th Chinese Control Conference (CCC). IEEE, 2021. [\[Link\]](#)
- [2] Huang Y, Li P, Yan S, **Ou Y**, et al. **Tightly-Coupled Visual-DVL Fusion For Accurate Localization of Underwater Robots**[C]//2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE, 2023. [\[Link\]](#)

📌 Invention Patents

- [1] Zhou C, **Ou Y**, Fan J, et al, **Underwater Mobile Dense Mapping Platform and Mapping Method Based on Binocular Structured Light**. Chinese Patent, CN117893675A. (Practical Finisher)
- [2] Zhou C, **Ou Y**, Fan J, et al, **A Simultaneous Localization System and Method for Underwater Robots**. Chinese Patent, KHP2411116437.0. (Practical Finisher)
- [3] Zhang Z, Zhou C, Fan J, **Ou Y**, **Bionic Lateral Line Sensor**. Chinese Patent, CN114624461B.
- [4] Zhang Z, Zhou C, Fan J, ..., **Ou Y**. **Calibration Model Training Method, Device and System, Electronic Equipment and Storage Medium**. Chinese Patent, CN117634641A.

AWARDS

2024	📄	China PhD National Scholarship (3% of all PhDs, 3W RMB award)
2024	📄	Selected for PhD International Coop Program of UCAS (one spot per institute)
2024	📄	Outstanding Student Leader Award of UCAS (top 2%)
2023	📄	Selected for experimental class of CASIA (8/276, 5W RMB scholarships each year)
2022	🏆	China ICV Algorithms Challenge Competition (1st place, 2W RMB)
2022	📄	Three Good Students Award of UCAS (top 10%)
2021	🏆	Data Application Innovation and Entrepreneurship Competition (merit award, 9/453)
2021	📄	Outstanding Graduate Student Award of Southeast University (top 3%)
2020	🏆	National College Students Intelligent Vehicle Competition (national 2nd prize)
2020	📄	China National Inspiration Scholarship (top 3.22%)
2019	🏆	RoboCup Robotics World Cup (China Region) (national 1st prize)
2019	🏆	National College Students Electronic Design Competition (national 2nd prize)
2019	🏆	The 10th Robot Competition Jiangsu Province (provincial 1st prize)
2019	📄	Three Good Students Award of Southeast University (top 10%)
2018	🏆	The 9th Robot Competition Jiangsu Province (provincial 1st prize)
2016	🏆	High School Mathematics Olympiad Competition, Anhui Province (provincial 2nd prize)

PROJECTS

1. Dense SLAM Research for Autonomous Robots Based on Multi-modal Information Perception

Jan. 2023 - Present

- Propose an underwater tightly-coupled hybrid visual inertial dense SLAM framework, named Hybrid-VINS.
- Propose an inertial-acoustic-pressure-structured light underwater state estimation framework.

2. Movable Dense Reconstruction and Collision-Free Navigation for Autonomous Underwater Vehicles

Sep. 2022 - Dec. 2023

- Propose a structured light-based underwater movable reconstruction framework, named Water-MBSL.
- Design a 3D dense mapping robotic system based on self-designed scanning BSL, named ROV-Scanner.

3. Binocular Structured Light 3-D Reconstruction System: Design, Model and Laser-based Calibration

Sep. 2021 - Jun. 2022

- Design an underwater binocular structured light scanner by utilizing a galvanometer.
- Propose an binocular refraction measurement model along with a laser-based calibration method.

ACADEMIC ACTIVITIES

IEEE Transactions on Intelligent Vehicles

Review one paper related to autonomous driving.

Reviewer

July, 2024

IEEE Sensors

Review one paper related to camera-imu calibration.

Reviewer

July, 2023

2021 40th Chinese Control Conference (CCC)

Reporting scientific results on underwater speed measurement with peers.

Poster

June, 2021

SKILLS

Programming

C++, C, Python, Matlab, Java

Softwares & Libraries

ROS, Eigen, Ceres, G2o, Gazebo, Webots

Robotics Hardware

ARM(STM32), Keil5, Solidworks, Altium Designer

Languages

Chinese (Native), English (CET6 & CET4)