



## Rongxin Cui

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### EDUCATION

- Northwestern Polytechnical University 2004.09-2008.07  
Control Science and Engineering PhD.
- Northwestern Polytechnical University 2003.09-2004.07  
Control Theory and Control Engineering M.Sc. Eng.
- Northwestern Polytechnical University 1999.09-2003.07  
Automation B.Eng.

### EXPERIENCE

- Northwestern Polytechnical University 2015.05-Present  
School of Marine Science and Technology Professor
- Northwestern Polytechnical University 2010.08-2015.04  
School of Marine Science and Technology Associate Professor
- National University of Singapore 2008.08-2010.08  
Centre for Offshore Research and Engineering

### RESEARCH INTERESTS

Marine Robots, Systems and Control, Machine Learning, Guidance, Navigation and Control

### SELECTED AWARDS

1. Rongxin Cui(1/5); **Theory and Methods of Cooperative Control for Unmanned Underwater Vehicles**; Second Prize of Shaanxi Provincial Natural Science Award; 2021.4
2. Rongxin Cui(2/4); **Intelligent Learning and High-Performance Adaptive Control Theory of Autonomous Systems in Complex and Unknown Environments**; First Prize of Natural Science Award of Chinese Association of Automation; 2022
3. Rongxin Cui(2/4); **Integrated Theory of Planning, Learning, and Intelligent Control for Autonomous Systems under Complex Multi-Factor and Performance Constraints**; Second Prize of Award for Outstanding Achievement in Scientific Research (Science and Technology) in Institutions of Higher Learning; Ministry of Education; 2022

### SELECTED PUBLICATIONS

1. Lepeng Chen; **Rongxin Cui\***; Weisheng Yan; Hui Xu; Haiyan Zhao; Haoquan Li; Design and climbing control of an underwater robot for ship hull cleaning, *Ocean Engineering*, 2023, 274(2): 114024.
2. Feiyu Ma; Weisheng Yan\*; Lepeng Chen; **Rongxin Cui\***; CPG-based motion planning of hybrid underwater hexapod robot for wall climbing and transition, *IEEE Robotics and Automation Letters*, 2022, 7(4): 12299-12306
3. Ruiqi Mao; **Rongxin Cui\***; C. L. Philip Chen; Broad learning with reinforcement learning signal feedback: theory and applications, *IEEE Transactions on Neural Networks and Learning Systems*, 2021, 33(7): 2952-2964.
4. Raja Rout; **Rongxin Cui\***; Weisheng Yan; Sideslip-compensated guidance-based adaptive neural control of marine surface vessels, *IEEE Transactions on Cybernetics*, 2020, 52(5): 2860-2871.
5. Raja Rout; **Rongxin Cui\***; Zhengqing Han; Modified line-of-sight guidance law with adaptive neural network control of underactuated marine vehicles with state and input constraints, *IEEE Transactions on Control Systems Technology*, 2020, 28(5): 1902-1914.
6. Lepeng Chen; **Rongxin Cui\***; Chenguang Yang; Weisheng Yan; Adaptive neural network control of underactuated surface vessels with guaranteed transient performance: theory and experimental results, *IEEE Transactions on Industrial Electronics*, 2020, 67(5): 4024-4035.

7. Xinxin Guo; Weisheng Yan\*; **Rongxin Cui\***; Reinforcement learning-based nearly optimal control for constrained-input partially unknown systems using differentiator, *IEEE Transactions on Neural Networks and Learning Systems*, 2020, 31(11): 4713-4725.
8. Xinxin Guo; Weisheng Yan\*; **Rongxin Cui\***; Event-triggered reinforcement learning-based adaptive tracking control for completely unknown continuous-time nonlinear systems, *IEEE Transactions on Cybernetics*, 2019, 50(7): 3231-3242.
9. Xinxin Guo; Weisheng Yan\*; **Rongxin Cui\***; Integral reinforcement learning-based adaptive NN control for continuous-time nonlinear MIMO systems with unknown control directions, *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 2019, 50(11): 4068-4077.
10. Yong Li; Chenguang Yang\*; Weisheng Yan; **Rongxin Cui\***; Andy Annamalai; Admittance-based adaptive cooperative control for multiple manipulators with output constraints, *IEEE Transactions on Neural Networks and Learning Systems*, 2019, 30(12): 3621-3632.
11. Yang Li; **Rongxin Cui\***; Weisheng Yan; Demin Xu; Long-term adaptive informative path planning for scalar field monitoring using cross-entropy optimization, *Science China Information Sciences*, 2019, 62(5): 1-3.
12. Chenguang Yang\*; Chuize Chen; Wei He; **Rongxin Cui\***; Zhijun Li; Robot learning system based on adaptive neural control and dynamic movement primitives, *IEEE Transactions on Neural Networks and Learning Systems*, 2019, 30(3): 777-787.
13. Hu Xiao; **Rongxin Cui\***; Demin Xu; A sampling-based bayesian approach for cooperative multiagent online search With resource constraints, *IEEE Transactions on Cybernetics*, 2018, 48(6): 1773-1785.
14. **Rongxin Cui\***; Chenguang Yang; Yang Li; Sanjay Sharma; Adaptive neural network control of AUVs with control input nonlinearities using reinforcement learning, *IEEE Transactions on Systems Man Cybernetics-Systems*, 2017, 47(6): 1019-1029.
15. **Rongxin Cui\***; Lepeng Chen; Chenguang Yang; Mou Chen; Extended state observer-based in tegral sliding mode control for an underwater robot with unknown disturbances and uncertain nonlinearities, *IEEE Transactions on Industrial Electronics*, 2017, 64(8): 6785-6795.
16. **Rongxin Cui\***; Yang Li, Weisheng Yan; Mutual information-based multi-AUV path planning for scalar field sampling using multidimensional RRT\*, *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 2016, 46(7): 993-1004.
17. **Rongxin Cui\***; Bo Gao; Ji Guo; Pareto-optimal coordination of multiple robots with safety guarantees, *Autonomous Robots*, 2012, 32(3): 189-205.
18. **Rongxin Cui\***; Shuzhi Sam Ge\*; Bernard Voon Ee How; Yoo Sang Choo; Leader-follower formation control of underactuated autonomous underwater vehicles, *Ocean Engineering*, 2010, 37(17-18): 1491-1502.

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## SELECTED RECENT PROJECTS-ONLY LISTS ONES THAT CAN BE PUBLICLY DISCLOSED

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1. **Modelling and Control of Unmanned Remotely Operated Vehicle for Marine Object Salvage**, NSFC, U22A2066, 2023.01-2026.12, RMB2,530,000, **PI**
2. **Autonomous Perception and Decision of Amphibious Robots**, NSFC, U1813225, 2019.01- 2022.12. RMB2,900,000, **PI**
3. **Bridge Underwater Structure Inspection Robot**, National Key Research and Development Program of China, 2019YFB1310402, 2019.12-2022.11. RMB1,980,000, **PI**
4. **Underwater Structure Inspection Robot**, Key Research and Development Program of Shaanxi Province, 2022ZDLGY03-05, 2022.01-2024.12. RMB800,000 **PI**

## SERVICES

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**Editor** for *Journal of Intelligent and Robotic Systems*

**Associate Editor** for *IEEE Transactions on Systems Man and Cybernetics: Systems*

**Associate Editor** for *IET Cyber-systems and Robotics*