

# Yuxing Wang

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## RESEARCH INTERESTS

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Main topics: Robot Co-design, Robot Learning, Reinforcement Learning, Evolutionary Computation.

I am particularly fascinated with building intelligent robotic systems that dynamically adapt their morphologies and behaviors. The related topics I have touched upon to evolutionary reinforcement learning for robot control optimization and brain-body co-design for modular soft robots. I worked on the application of Game AI, rigid robots, and a bit of soft robots.

## EDUCATION&WORK

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### TSINGHUA UNIVERSITY

2023.07-Now

- *Research Assistant @ Tsinghua SIGS*
- *Research Associate @ Research Institute of Tsinghua University in Shenzhen*

### TSINGHUA UNIVERSITY

2020.08-2023.06

- *M.Eng. in Electronic and Information Engineering*
- *Advised by [Prof. Xueqian Wang](#)*
- *Cumulative GPA: 3.89/4.00, Rank: 2/45*

### SOUTHWEST MINZU UNIVERSITY

2016.09-2020.06

- *B.Eng. in Communication Engineering with Highest Honors*
- *Cumulative GPA: 3.86/4.00, Rank: 1/145*

## PUBLICATION

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- **Y Wang**, S Wu, T Zhang, Y Chang, H Fu, Q Fu, X Wang, PreCo: Enhancing Generalization in Co-Design of Modular Soft Robots via Brain-Body Pre-Training, *Oral Presentation, Top 6.6%, Conference on Robot Learning 2023*, 2023.11
- **Y Wang**, S Wu, H Fu, Q Fu, T Zhang, Y Chang, X Wang, Curriculum-based Co-design of Morphology and Control of Voxel-based Soft Robots, *International Conference on Learning Representations 2023*, **H5-index=303**, 2023.01
- T Zhang, Z Lin, **Y Wang**, D Ye, Q Fu, X Wang, B Liang, X Li, Dynamics-Adaptive Continual Reinforcement Learning via Progressive Contextualization, *IEEE Transactions on Neural Networks and Learning Systems*, **JCR Q1, IF=14.255**, 2022.08
- **Y Wang**, T Zhang, Y Chang, B Liang, X Wang, B Yuan, A Surrogate-Assisted Controller for Expensive Evolutionary Reinforcement Learning, *Information Sciences*, **JCR Q1, IF=8.233**, 2021.12
- **Y Wang**, B Yuan, From Big Data Based Price Discrimination to Privacy Leakage: Ethical Analysis and Reflections on Privacy Issues from the Perspective of Hardware and Software, *Science Economy Society (Chinese)*, 2021.10
- **Y Wang**, Y Jiang, A Weighted Minimum Distance Classifier Based on Relative Offset, *IEEE 4th International Conference on Cloud Computing and Big Data Analysis*, 2019.04

## RESEARCH EXPERIENCE

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**2022.05-2023.04 Research Intern: Quality-Similarity Diversity Optimization for Generating User-Preferred Game AI**

*Tencent AI Platform Department*

*Funded by Tencent Rhino-Bird Research Elite Program*

*Advised by [Shuang Wu](#) and [Haobo Fu](#)*

- Built a universal tool for quality-similarity diversity optimization, capable of generating task-specific diversity for Game AI using a set of user-specified behavior descriptors; Applied this tool to a variety of games such as Atari 2600 and “Auto Chess”.

**2020.01-2021.12 Project: Human versus Machine Intelligence**

*Tsinghua University*

*Funded by Natural Science Foundation of China*

- Constructed distributed Deep Q Networks (DQNs) and Evolutionary Strategies (ES) for training RL agents; Established the overall training framework; Expert-level players were defeated by our proposed agent model.

**2018.08-2019.12 Project: A Wearable Hand Rehabilitation Robot**

*Southwest Minzu University*

*Funded by National Undergraduate Training Program of Innovation & Entrepreneurship*

- Built a wearable hand rehabilitation robot to assist patients in performing rehabilitation exercises, such as finger flexion and extension; Fabricated the robot via 3D printing; Debugged the circuit; Established a web server for collecting data.

## **2017.06-2018.06 Competition: International Underwater Robot Competition, 2D Simulation League**

*Southwest Minzu University-Peking University Joint Underwater Robot Lab*

- Developed control strategies for 2D simulated fishes using C#; Lead the group to win First Prize in IURC 2017, 2018.

## **ACADEMIC SERVICE**

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**Reviewer (JOURNAL):** TNNLS, INFORMATION SCIENCES, IEEE ACCESS

**Reviewer (CONFERENCE):** NIPS 2023, ICLR 2024

## **AWARDS AND SCHOLARSHIPS**

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| • National Scholarship   | 2017-2019 |
| • First Prize, International Underwater Robot Competition  | Jul. 2017 |
| • Honorable Mention, Mathematical Contest in Modeling  | Apr. 2018 |
| • First Prize in Central and Southwestern China Division, “TI Cup” National Undergraduate IOT Design Contest | Aug. 2018 |
| • Bronze Award, National College Student Curricular Academic Science and Technology Works Competition        | Mar. 2019 |
| • Outstanding Graduate of Sichuan Province   | Apr. 2020 |
| • 《PEOPLE’s DAILY》 Representative List of National Scholarship Winners for Undergraduate Students            | Apr. 2020 |
| • Tencent Rhino-Bird Research Elite Program  | May. 2022 |

## **ACTIVITIES / SKILLS**

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- *Activities:* Teaching assistant of “Data Mining” and “Ethics of Artificial Intelligence” (THU), Fall 2021.
- *Skills:* Python, Torch, TensorFlow, Latex, Linux, C++ and MS Office Suite; Teacher Qualification Certificate.
- *Interests:* Table tennis, voluntary work and bamboo flute.