Jingzehua Xu

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Education

University of California Berkeley 6/2024 – 8/2024
Summer Sessions *California, USA*
Tsinghua University 9/2023 – present
M.S. in Electronic Information *Beijing, China*
Zhejiang University 9/2019 – 6/2023
B.S. in Marine Science *Hangzhou, China*
Zhejiang University 9/2019 – 6/2023
B.E. in Electronic Science and Technology (Double Degree) *Hangzhou, China*

- GPA: 3.91/4.00; Ranking: $1^{st}/20$
- Courses: Linear Algebra, Complex Function, Partial Differential Equation, Probability Theory and Statistics, Stochastic Process, Object-Oriented programming, Data Analysis and Algorithm Design, Fundamentals of Numerical Simulation and Machine Learning, Calculation Method, Signals and Systems, Digital Signal Processing, Digital Image Processing, Automatic Control Theory, Underwater Robot Design.

Publications and Manuscripts

[1] **Jingzehua Xu**, Zekai Zhang, Jingjing Wang, Zhu Han and Yong Ren, *Efficient Training Framework for Underwater Pursuit-Evasion Game Relying on Transformer-Based Offline Reinforcement Learning*, IEEE Internet of Things Journal, early access, 2024.

[2] **Jingzehua Xu**, Yimian Ding, Guanwen Xie, Zekai Zhang, Ziyuan Wang, Yongming Zeng and Gang Li, *Multi-AUV Target Location and Cooperative Tracking for Internet of Underwater Things*, IEEE World Congress on Computational Intelligence (WCCI), 2024.

[3] **Jingzehua Xu**, Zekai Zhang, Ziyuan Wang, Jingjing Wang and Yong Ren, *VoI and Energy-Aware AUV-Assisted Data Collection for Internet of Underwater Things*, IEEE Wireless Communications and Networking Conference (WCNC), 2024.

[4] Zekai Zhang*, **Jingzehua Xu***, Guanwen Xie, Jingjing Wang, Zhu Han and Yong Ren, *Environment-Energy-Aware AUV-Assisted Data Collection for IoUT Relying on Reinforcement Learning*, IEEE Internet of Things Journal, early access, 2024.

[5] Zekai Zhang*, **Jingzehua Xu***, Jun Du, Weishi Mi, Ziyuan Wang, Zonglin Li and Yong Ren, *UUVSim: Intelligent Modular Simulation Platform for Unmanned Underwater Vehicle Learning*, IEEE World Congress on Computational Intelligence (WCCI), 2024.

[6] Rubiao Cui*, **Jingzehua Xu***, Botao Huang, Huakun Xu, Miao Peng, Jingwen Yang, Jintao Zhang, Yikuan Gu, Daoyi Chen, Haoran Li and Huiliang Cao, *A Temperature Compensation Approach for Micro-Electro-Mechanical Systems Accelerometer Based on Gated Recurrent Unit–Attention and Robust Local Mean Decomposition–Sample Entropy–Time-Frequency Peak Filtering*, Micromachines, 2024.

[7] Ziyuan Wang, **Jingzehua Xu**, Yuanzhe Feng, Yijing Wang, Guanwen Xie, Xiangwang Hou, Wei Men and Yong Ren, *Fisher-Information-Matrix-Based USBL Cooperative Location in USV-AUV Networks*, Sensors, 2023; 23(17):7429. https://doi.org/10.3390/s23177429.

[8] **Jingzehua Xu**, Zekai Zhang, Yongming Zeng, Lingru Meng, Jiayi Feng, Jingjing Wang and Yong Ren, *AUV Efficient Navigation Relying on Adaptive Proximal Policy Optimization*, in submission.

[9] **Jingzehua Xu**, Zekai Zhang, Ziqi Zhang, Ziyuan Wang, Jingjing Wang and Yong Ren, *MMOTS: A Multi-UAV Pursuit-Evasion Game Training Strategy Relying on Offline Reinforcement Learning*, in submission.

[10] Ziqi Zhang*, **Jingzehua Xu***, Jinxin Liu, Zifeng Zhuang and Donglin Wang, Context-Former: Stitching via Latent Conditional Sequence Modeling, in submission.

[11] Luchao Song*, **Jingzehua Xu***, En Huang and Yi Li, *Convolutional Flowrate Attention Network: Flowrate Prediction of Gas-Water Two-Phase Flow with Multi-Sensor Fusion and CBAM*, in submission.

Experiences

National University of Singapore, Department of Computer Science 10/2023 – 4/2024

Research Assistant *Advisor: Prof. Lin Shao*

- **Robotic Manipulation LfD via Decision Diffuser:** Adjust decision diffuser to make it adapted to multi-modal data, and combine it with SoftMAC, a differentiable simulation framework coupling soft bodies with articulated rigid bodies and clothes, to realize robotic manipulation learning from demonstrations (LfD). Finally verified the system under several manipulation tasks (e.g. pouring wine).

Westlake University, Machine Intelligence Laboratory 6/2023 – 8/2023

Undergraduate Researcher *Advisor: Prof. Donglin Wang*

- **Representation Learning in Decision Transformer:** Proposed ContextFormer to provide Decision Transformer (DT) with stitching by matching trajectory contexts, combining context-aware imitation learning (IL) with sequence modeling to emulate expert trajectory representations. Experiments on D4RL benchmarks and comparisons with DT variants show superior performance in emulating expert decision making.

Zhejiang University, Ocean College 3/2021 – 7/2022

Undergraduate Researcher *Advisor: Prof. Haocai Huang*

- **Underwater Spherical Robot:** Developed a 6-DOF fully actuated underwater spherical robot via Raspberry PI, STM32 and deep learning algorithms, with the functions of navigation, obstacle avoidance, letter and color recognition. Finally, we participated in the underwater robot competition of Zhejiang University and Zhejiang Province, and won the first prize and the second prize, respectively.

Professional Activities

Conference Session Chair 2024

- IEEE Wireless Communications and Networking Conference (WCNC)

Conference Reviewer 2024

- IEEE International Conference on Robotics and Automation (ICRA)
- International Joint Conference on Neural Networks (IJCNN)

Selected Honors

Outstanding Graduate *(awarded to top undergraduates in Zhejiang University)* 2023

National Encouragement Scholarship *(3% in Zhejiang University)* 2022

Top Ten College Student *(0.6% in LanTian Community of Zhejiang University)* 2021

Nandu First-Class Scholarship *(0.2% in Zhejiang University)* 2021

Zhejiang Provincial Government Scholarship *(3% in Zhejiang University)* 2021

Skills

Languages Chinese (native), English (TOEFL: 101)

Programming Python (Pytorch), MATLAB/Simulink, ROS, C/C++, Ansys Fluent