

# Xunzhe Zhou

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## EDUCATION

<b>Fudan University</b>	Shanghai, China
• B.S. in Computer Science and Technology, GPA 3.55/4.00	2021.09 - now
• Natural Science Experimental Class, GPA 3.58/4.00	2020.09 - 2021.06
<i>Note: Initially enrolled in Natural Science Experimental Class and later transferred to Computer Science and Technology.</i>	
<b>University of California, Berkeley</b>	Berkeley, CA, USA
• Exchange student, Department of EECS, GPA 4.00/4.00	2023.08 - 2023.12

## PUBLICATIONS (\* denotes equal contribution)

- R. Cao\*, **Xunzhe Zhou**\*, J. Hou, C. Guan, S. Leng, “Reservoir computing as digital twins for controlling nonlinear dynamical systems”, *in submission*.
- Q. He, J. Zeng, W. Huang, L. Chen, J. Xiao, Q. He, **Xunzhe Zhou**, J. Liang, Y. Xiao “Can Large Language Models Understand Real-World Complex Instructions?” accepted by AAAI 2024.

## RESEARCH EXPERIENCE

<b>School of Computing, National University of Singapore</b>	Singapore, Singapore
<i>Advisor: Prof. Lin Shao</i>	2024.05 - now
<ul style="list-style-type: none"><li>• Investigate embodied task planning through visual prompting, in order to enhance robot spatial perception.</li><li>• Collaborate on research of multi-agent task planning, contributing to dataset generation and skill learning for our collaborative heterogeneous robot system.</li></ul>	
<b>School of Data Science, Fudan University</b>	Shanghai, China
<i>Advisors: Prof. Yanwei Fu and Prof. Xiangyang Xue</i>	2024.01 – 2024.05
<ul style="list-style-type: none"><li>• Collaborate on constructing a Franka Panda robot with a Hermes mobile base, participating in the research of mobile robot spatial navigation and manipulation in physical world.</li><li>• Contribute to hierarchical task planning, focusing on using LLMs’ commonsense and utilizing scene memorization to enhance the robot’s long-horizon planning capabilities.</li><li>• Investigate VLMs’ hallucination in visual-semantic conflicts, constructing datasets to validate and address the hallucination, in order to improve robot ego-centric perception.</li><li>• Learn 6D pose estimation and 3D scene reconstruction technique, collaborating on the design of neural networks and pipeline for instance-level 6D pose estimation.</li></ul>	
<b>Shanghai Key Laboratory of Data Science, Fudan University</b>	Shanghai, China
<i>Advisor: Prof. Yanghua Xiao</i>	2023.06 - 2023.08
<ul style="list-style-type: none"><li>• Investigate LLMs’ real-world complex instructions following capabilities. Collaborate on proposing CELLO Benchmark, contributing to both dataset construction and evaluation criteria design.</li><li>• Draft the proposal of project <i>A Practical Benchmark for Evaluating Large Language Models’ Understanding of Complex Instructions under Hard Constraints</i> for applying National Natural Science Foundation Youth Project of China.</li><li>• Co-author paper <i>Can Large Language Models Understand Real-World Complex Instructions?</i>, accepted by AAAI 2024.</li></ul>	
<b>Institute of AI and Robotics, Fudan University</b>	Shanghai, China
<i>Advisor: Prof. Siyang Leng</i>	2022.11 - 2023.05
<ul style="list-style-type: none"><li>• Research nonlinear dynamical systems control by constructing and controlling reservoir computing as digital twins of unknown systems using only observable data, providing new tools for designing control strategies.</li><li>• Implement various chaotic systems and their RC digital twins, and conduct experiments to validate the prediction accuracy, control efficiency, and robustness of RC digital twins.</li><li>• Co-first author paper <i>Reservoir computing as digital twins for controlling nonlinear dynamical systems</i>.</li></ul>	

## GLOBAL EXPERIENCE

<b>Department of Electrical Engineering and Computer Sciences, UC Berkeley</b>	2023.08 - 2023.12
<ul style="list-style-type: none"><li>• Study advanced courses including CS182/282A Deep Learning, EECS127/227A Optimization Models, and CS188 Intro to Artificial Intelligence, while auditing graduate course CS285 Deep Reinforcement Learning, gaining comprehensive knowledge in these areas.</li><li>• Conduct course project <i>Neural Style Transfer Based on Fine Tuning Vision Transformers</i>, contributing to the construction and fine-tuning of ViT encoders in the NST model. Co-author our project essay.</li></ul>	

## HONOR & AWARDS

- Second prize of scholarship in Outstanding Students 2021
- Third prize of scholarship in Outstanding Students 2023
- Second award in National High School Mathematics League 2019
- Honor roll of distinction certificate in The Mathematics League (Top 8%) 2016
- Champion of Soccer League, Fudan University 2023 & 2024

## COMMUNITY SERVICE

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- Fudan University Recruit Voluntary Group 2022
- Covid-19 Voluntary Service 2022
- Guizhou Province Voluntary Service 2019

## SKILLS

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- Relevant coursework: Deep Learning (CS182/282A@Berkeley), Optimization Models (CS127/227A@Berkeley), Reinforcement Learning (CS285@Berkeley), Artificial Intelligence (CS188@Berkeley & Intro-to-AI@Fudan), Machine Learning, Data Mining.
- Programming Languages: Python, AI Framework, C/C++, Matlab, Verilog.
- Software: Pytorch, COLMAP, ROS, Git, L<sup>A</sup>T<sub>E</sub>X.
- Robots: Franka Emika Panda, Kinova Gen2, HERMES.
- Simulator: Habitat, AI2-THOR, ThreeDWrold, Gazebo, PyBullet, MuJoCo, IssacSim.

## STANDARDIZED TESTS

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- IELTS: Overall 7.0 (Listening 6.5+Reading 7.5+Writing 6.5+Speaking 6.5).
- Duolingo: Overall 120 (Literacy 120+ Comprehension 125+ Conversation 105+ Production 90).