Yongzhong Wang

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Southern University of Science and Technology / Computer Science and Technology

Education

Southern University of Science and Technology (SUSTech) Sep 2023 – Jun 2027 (Expected)
B.Eng. in Computer Science and Technology Core GPA: 3.89/4.0 Overall GPA: 3.84/4.0
TOEFL: 107 (Reading 29, Listening 27, Speaking 24, Writing 27)
Core Courses: Calculus (A), Introduction to Computer Programming (A+), Digital Logic (A+), Data Structures and Algorithm Analysis (A+), Computer Organization Principle (A+), Discrete Mathematics (A), Probability and Statistics for Engineering (A), Artificial Intelligence (A), Database Principle (A)
Note: Course grading scale: A+ = 97 or above, A = 94 or above.

Research Interests

Embodied AI, Robot Learning, Autonomous Robot Data Generation, Vision-Language Models, In-Context Imitation Learning, Dexterous Manipulation.

Publications

Yongzhong Wang*, Keyu Zhu*, Yong Zhong*, Liqiong Wang, Jinyu Yang, Feng Zheng.
"RADAR: Closed-Loop Robotic Data Generation via Semantic Planning and Autonomous Causal Environment Reset."
IEEE/RSJ IROS 2026. Accepted. *(* Equal contribution).* [**arXiv**]

Wenyuan Xie*, Mengyang Hong*, **Yongzhong Wang***, Yanbiao Ji, Yijin Zhou, Shaokai Wu, Shalayiding Sirejiding, Huayi Zhou, Yi-Chao Chen, Ma Ling, Yue Ding, Hongtao Lu.
"Navi-Agent: Unlocalized Monocular Navigation Agent."
IEEE ICRA 2027. Under Review. *(* Equal contribution).* [**arXiv**]

Experience

Shanghai Jiao Tong University (SJTU) Jun 2026 – Present
Research Assistant, advised by Dr. Yue Ding | Vision-Language Navigation, Embodied Agents

- **Navi-Agent: Coordinate-Free Visual Spatial Memory:** Built the spatial-memory and instruction-reasoning core of Navi-Agent, a zero-shot VLN-CE agent that follows long-horizon instructions from a single RGB camera without depth, pose, or metric maps. Designed a coordinate-free Visual Anchor Graph whose nodes are visual places and edges are executed motions, replacing metric localization, and paired it with visual-revisitation backtracking for failure recovery, reaching 80.3% physical return success and state-of-the-art results among geometry-constrained methods (SR 33.4%).

VIP Lab, SUSTech Sep 2024 – Present
Research Assistant | Robot Learning, Autonomous Data Generation, Dexterous Manipulation

- **RADAR: Closed-Loop Robotic Data Generation Pipeline** Sep 2025 – Feb 2026
  Designed and implemented RADAR, a closed-loop robot data generation engine that scales 2–5 seed demonstrations into task-relevant manipulation data with minimal human intervention. Built a four-module pipeline integrating VLM-based semantic object grounding and hierarchical task planning, GNN-based in-context imitation learning for trajectory execution, structured VQA-based success evaluation, and an FSM-driven LIFO causal reset mechanism for autonomous environment restoration and failure recovery.
- **MANO-DexLatent Action Bridge:** Mar 2026 – Jun 2026
  Built a MANO-to-dexterous-hand action bridge for transferring human hand motion into

robot dexterous hands through a shared latent action representation. Implemented MANO kinematic retargeting, joint-axis and joint-limit calibration, human-motion-prior pretraining, and Rerun/ManiSkill replay validation on Inspire and Revo2 hands.

Spatialtemporal AI (Embodied AI Startup) Jul 2025 – Sep 2025
Algorithm Intern | Automated Imitation Learning Retrieval System

- **Automated Imitation Learning Retrieval System:** Refactored an early CLIP-based demonstration retrieval pipeline that overemphasized object similarity and failed to distinguish fine-grained action semantics, such as "lift cup" versus "translate cup." Rebuilt the retrieval core with high-precision VLM semantic matching and constructed a cross-modal expert demonstration database integrating object point clouds and task instructions, enabling Top-K imitation trajectory retrieval from scene images and target instructions to improve semantic consistency of retrieved demonstrations for downstream imitation learning.

Projects

National College Mathematical Modeling Contest (CUMCM) Sep 2024
Team Leader & Modeler

- Collaborated with teammates within a 3-day window to analyze the topic, formulate content strategies, perform algorithm analysis, and implement programming logic.
- Summarized the team's algorithmic implementation logic and independently authored the 40+ page contest paper.
- **Result:** Won the Provincial First Prize (Top 6 out of 200+ SUSTech teams); Ranked in the Top 1% among 10,000+ teams nationwide.

ISC Student Cluster Competition Mar 2025 – Jun 2025
Team Member | Computing Power Optimization

- Simulated kitchen airflow dynamics using Code_Saturne, combining Lagrangian particle tracking technology with High-Performance Computing (HPC).
- Mastered Linux cluster environment configuration, performance analysis, and tuning methods to accurately model the dispersion process of cooking pollutants.

Skills

Programming: Python, C/C++, Java, SQL, Shell, Git, Linux
ML / Robotics: PyTorch, Vision-Language Models (VLMs), CLIP, Imitation Learning, Dexterous Manipulation, Point-Cloud Processing
Tools & Systems: ManiSkill, RLBench, Rerun, RealSense D435i, Realman RM65-B, PostgreSQL