Wenbo Yu

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RESEARCH INTERESTS

Robot learning, Sim-to-real transfer, Computer Vision, Continual Learning, 3D Vision, HCI

EDUCATION

Beijing Forestry University, Beijing, China — Sep. 2023 — Jun. 2027
Bachelor of Science:Automation — Cumulative GPA: GPA: 3.86/4.00 ; Ranked 3rd in Major

RESEARCH EXPERIENCE

Gaoling School of AI , Renmin University of China — Beijing, China
Research Assistant (Advisor: Prof. Di Hu) — Jan. 2025 — Present

- Led Research on Sim-to-Real Transfer: Proposed GeCo-SRT, a geometry-aware continual learning framework designed to bridge the simulation-to-reality gap across sequential manipulation tasks.
- Algorithm Development: Engineered a Geometry-aware Mixture-of-Experts (Geo-MoE) module to extract invariant geometric features (e.g., planarity, linearity) and a Geo-PER replay strategy to mitigate catastrophic forgetting.
- Key Achievements: Validated the method on real-world robotic tasks, achieving a 52 % average performance improvement over baselines and reducing data requirements for new tasks to 16.7% compared to training from scratch. The paper is currently under review at a top-tier conference.
- Collaboration & Mentorship: Contributed to various robotics projects and actively mentored junior students, guiding them through experimental workflows and robot learning fundamentals.

Beijing Forestry University — Beijing, China
Research Assistant (Advisor: Prof. Junguo Zhang) — May 2024 — Jan. 2025

- Spearheaded research on secure reinforcement learning and trajectory planning to address safety constraints in complex environments.
- Enhanced the Actor-Critic (AC) architecture by integrating Control Barrier Functions (CBF) and risk-aware models, optimizing both policy and value networks for robust decision-making.
- Balanced task efficiency with risk minimization, ensuring agent reliability and stability for potential real-world applications.

PUBLICATIONS

- **Wenbo Yu**, Wenke Xia, Weitao Zhang, Di Hu. GeCo-SRT: Geometry-aware Continual Adaptation for Cross-Task Sim-to-Real Transfer. 2025. (CVPR Under Review)

  GeCo-SRT reformulates the cross-task sim-to-real transfer problem as a human-in-the-loop continual learning (CL) process. Unlike traditional methods that treat domain transfer as a static alignment, this framework enables robots to incrementally refine their policies through human corrections while maintaining and reusing knowledge across diverse tasks.

PROJECTS

Wildlife Protection with AI — Beijing, China
Core Team Member — May 2024 — Dec 2024

- Contributed to the optimization of deep learning models using Python and C++, significantly enhancing the classification accuracy and tracking efficiency of wildlife in infrared imagery.
- Conducted data preprocessing and curation on large-scale field datasets, providing a robust foundation for model training and subsequent behavioral analysis.
- Deployed infrared monitoring equipment in the field to ensure continuous, high-quality data acquisition, and presented technical reports demonstrating the project's innovation, securing the **Second Prize** in the Beijing Division of the China International College Students' Innovation Competition 2024.

AWARDS

China International College Students' Innovation Competition — Beijing, China
Second Prize (Beijing Division) — 2024

"TI Cup" Beijing College Student Electronic Design Competition Beijing, China
Third Prize 2025 & 2024

Beijing Forestry University Beijing, China
First Class Scholarship for Outstanding Students(Only for top 1%) 2024

Beijing Forestry University Beijing, China
Science and Technology Innovation Scholarship 2024

OTHER EXPERIENCES

ACM CHI Conference on Human Factors in Computing Systems (CHI 2025) Yokohama, Japan
Student Volunteer April 2025

- Selected as a Student Volunteer for the premier international conference on Human-Computer Interaction (HCI), assisting in on-site logistical operations including registration, session monitoring, and attendee guidance.
- Facilitated seamless academic exchange by supporting presenters and organizers during technical sessions, workshops, and demonstrations.
- Engaged with leading researchers and practitioners in the global HCI community, gaining exposure to cutting-edge research in human factors and interactive systems.

SKILLS

- **English:** CET-6: 559 (Pass: 450)
- **Programming:** Python, C++, C
- **Software:** Keil uVision, multisim, ROS, Microsoft SQL Server, Code Composer Studio(TI), Solid Edge, Matplotlib, LaTeX