

Wenbo Yu

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RESEARCH INTERESTS

Robot learning, VLA-RL, 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 accepted by CVPR2026.
- Collaboration & Mentorship: Contributed to various robotics projects and actively mentored junior students, guiding them through experimental workflows and robot learning fundamentals.

Beijing Innovation Center of Humanoid Robotics Co., Ltd

Beijing, China

Research Intern

Dec. 2025 – Present

- Core contributor to a Vision-Language-Action Reinforcement Learning (VLA-RL) project for robotic manipulation using PI-series policies, participating in the full development pipeline from task design to real-world deployment.
- Investigated long-horizon fine-grained manipulation tasks and designed task specifications and data collection protocols; supervised large-scale teleoperation data acquisition with thousands of real-world robot trajectories.
- Trained VLA-based manipulation policies and implemented reward function design for reinforcement learning to improve policy stability and task success rate.
- Deployed trained policies on real robotic systems and conducted iterative debugging and sim-to-real tuning to improve robustness and execution performance in long-horizon tasks.

Rutgers University

NJ, USA

Summer Research Intern (Advisor: Prof. Jingjin Yu)

May. 2026 — Present

- Supported the evaluation of Affordance2Action (A2A), a framework designed to ground task-conditioned instructions to functional object parts in complex scenes.
- Conducted extensive experiments to benchmark generic segmentation and Vision-Language Model (VLM) baselines, highlighting critical gaps in existing affordance datasets.

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 architecture by integrating Control Barrier Functions 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. 2026. (Accepted by CVPR2026)

GeCo-SRT reformulates the cross-task sim-to-real transfer problem as a human-in-the-loop continual learning 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.

- **Wenbo Yu**, Jifan Li, Wenke Xia, Yuchen Li, Yizhuo Zhang, Pei Ren, Zhengping Che, Di Hu. Barrier-Constrained Guidance For Real-time Asynchronous VLA Execution. 2026. (Under Review)
- Wenke Xia*, Pei Ren*, **Wenbo Yu**, Yizhuo Zhang, Jifan Li, Yixue Zhang, Yinuo Zhao, Qingyang Gao, Jianlong Fu, Jian Tang, Zhengping Che, Di Hu. Not All Actions are Equal: Reliable Value Estimation for Offline-to-Online Reinforcement Learning. 2026. (Under Review)
- Litao Liu, Yifan Han, Pengfei Yi, **Wenbo Yu**, Hanqing Wang, Haoran Du, Enze Yuan, Zilin Yuan, Ruiding Feng, Michael Liu, Qi Zhang, Jingjin Yu. Affordance2Action: Task-Conditioned Scene-level Affordance Grounding for Real-Time Manipulation. 2026. (Under Review)

Academic Services

- Conference Reviewer
2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
10th Annual Conference on Robot Learning (CoRL 2026)

PROJECTS

Wildlife Protection with AI

Core Team Member

Beijing, China
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

Second Prize (Beijing Division)

Beijing, China
2024

"TI Cup" Beijing College Student Electronic Design Competition

Third Prize

Beijing, China
2025 & 2024

Beijing Forestry University

First Class Scholarship for Outstanding Students(Only for top 1%)

Beijing, China
2024

Beijing Forestry University

Science and Technology Innovation Scholarship

Beijing, China
2024

OTHER EXPERIENCES

ACM CHI Conference on Human Factors in Computing Systems (CHI 2025)

Student Volunteer

Yokohama, Japan
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