

Ruiyu Wang

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PROFILE

Fourth-year Ph.D. student at KTH Royal Institute of Technology, advised by Prof. Florian T. Pokorny. My research focuses primarily on learning-based robotic manipulation and perception. Across my work, I study how visuomotor policies can identify and leverage task-relevant visual cues from camera observations to learn efficiently and act robustly in out-of-domain scenarios.

EDUCATION

2023 – Now	KTH Royal Institute of Technology (KTH), <i>Ph.D. in Computer Science</i>	Stockholm, Sweden
2021 – 2023	National University of Singapore (NUS), <i>M.Sc. in Quantitative Finance</i>	Singapore, Singapore
2017 – 2021	Peking University (PKU), <i>B.Sc. in Physics</i>	Beijing, China
2014 – 2017	Beijing No.4 High School (BHSF), <i>High School Diploma</i>	Beijing, China

EMPLOYMENT

December 2022	Bank of America Merrill Lynch, <i>Technology Analyst Full-Time Offer</i> <ul style="list-style-type: none">Received a full-time job offer as a Technology Analyst	Singapore, Singapore
April – July 2021	Qilin Investment, <i>Quantitative Research Intern</i> <ul style="list-style-type: none">Developed alpha factors and performed feature engineering using daily and intraday China A-share data	Beijing, China

PUBLICATIONS

Journal Papers and Conference Proceedings (* indicates equal contribution)

Nondeterministic Polynomial-time Problem Challenge: An Ever-Scaling Reasoning Benchmark for LLMs
Chang Yang*, **Ruiyu Wang***, et al.

2026 *Transactions on Machine Learning Research* (TMLR), [Paper](#) | [Website](#) | [Code](#)

PALM: Enhanced Generalizability for Local Visuomotor Policies via Perception Alignment

Ruiyu Wang*, Zheyu Zhuang*, Danica Kragic and Florian T. Pokorny

2026 *IEEE Robotics and Automation Letters* (R-AL), [Paper](#) | [Code](#)

PACA: Perspective-Aware Cross-Attention Representation for Zero-Shot Scene Rearrangement

Shutong Jin*, **Ruiyu Wang***, Kuangyi Chen, and Florian T. Pokorny

2025 *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision* (WACV), [Paper](#)

Double Oracle Neural Architecture Search for Game Theoretic Deep Learning Models

Aye Phyu Phyu Aung, Xinrun Wang, **Ruiyu Wang**, Hau Chan, Bo An, Xiaoli Li, and J. Senthilnath

2025 *IEEE Transactions on Image Processing*, [Paper](#)

Feature Extractor or Policy Learner: Rethinking the Role of Visual Encoders in Visuomotor Policies

Ruiyu Wang, Zheyu Zhuang, Shutong Jin, Nils Ingelhart, Danica Kragic, and Florian T. Pokorny

2025 *IEEE International Conference on Robotics Automation* (ICRA), [Paper](#)

MirrorDuo: Reflection-Consistent Visuomotor Learning from Mirrored Demonstration Pairs

Zheyu Zhuang*, **Ruiyu Wang***, Giovanni Luca Marchetti, Florian T. Pokorny, and Danica Kragic

2025 *Conference on Robot Learning* (CoRL), [Paper](#) | [Code](#)

RealCraft: Attention Control as A Tool for Zero-Shot Consistent Video Editing

Shutong Jin, **Ruiyu Wang**, and Florian T. Pokorny

2025 *International Conference on Neural Information Processing* (ICONIP), [Paper](#)

Enhancing Visual Domain Robustness in Behaviour Cloning via Saliency-Guided Augmentation

Zheyu Zhuang, **Ruiyu Wang**, Nils Ingelhart, Ville Kyrki, and Danica Kragic

2024 *Conference on Robot Learning* (CoRL), [Paper](#) | [Code](#)

How Physics and Background Attributes Impact Video Transformers in Robotic Manipulation: A Case Study on Planar Pushing
Shutong Jin, **Ruiyu Wang**, Muhammad Zahid, and Florian T. Pokorny
2024 *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Paper

Under-review and Workshop Papers

Localized Visual Feature Aggregation via Focus Pooling for Visuomotor Policies
Ruiyu Wang*, Zheyu Zhuang*, Danica Kragic, and Florian T. Pokorny
2026 *Under-review*

Attention from Action, for Action: Emergent Visual Bottlenecks for Policy Learning
Zheyu Zhuang*, **Ruiyu Wang***, Nick Heppert, Johannes Fabian Hahn, Abhinav Valada, Florian T. Pokorny, and Danica Kragic
2026 *Under-review*

From Ghosts to Animals: Language Models Need Bodies
Chang Yang, Xinrun Wang, Zijin Hong, Shuxin Li, **Ruiyu Wang**, and Hao Chen
2026 *Under-review*

Towards Universality: A Performance Benchmark of Pretrained Vision Models in Visuomotor Control
Ruiyu Wang, Zheyu Zhuang, Shutong Jin, and Florian T. Pokorny
2024 *IEEE/RSJ IROS Workshop on Collecting, Managing, and Utilizing Data through Embodied Robots*

A Game-Theoretic Perspective of Generalization in Reinforcement Learning
Chang Yang*, **Ruiyu Wang***, Xinrun Wang, and Zhen Wang
2022 *NeurIPS Workshop on Deep Reinforcement Learning*, Paper | Website

ACADEMIC SERVICE

- **Reviewer:** T-RO (2 times), CoRL (2025, 2026), ICRA (2026), and IROS (2025, 2026)
- **Researcher Demo:** CoRL 2025 CloudGripper, Proposal | Website
- **Teaching Assistant**, KTH: DD2380 Artificial Intelligence (Fall 2023, Fall 2024, Fall 2025), DD2421 Machine Learning (Fall 2023, Fall 2024), and DD2610 Deep Learning (Fall 2025)
- **Master's Thesis Advisor**, KTH: Gabriel Barista, thesis titled "Do Vision-Language-Action Models Predict the Future? A Mechanistic Interpretability Study"

PROJECTS & EXPERIENCE

Dec. 2025	KTH Royal Institute of Technology, <i>Personal Project</i> <ul style="list-style-type: none">• A personal project to make life easier• Developed a VR teleoperation system for UFactory robots using a Meta Quest device, integrating real-time VR control, data collection, and policy evaluation with ROS/ROS2 support, Code	Stockholm, Sweden
July 2022	Bank of America Merrill Lynch, <i>Code to Connect 2022</i> <ul style="list-style-type: none">• Participated in Bank of America Merrill Lynch Code to Connect 2022• Developed a Python-based reconciliation system for ledger statements and bank SWIFT payments; received a full-time offer as a Technology Analyst	Singapore, Singapore
2021–2022	Nanyang Technological University, <i>Research Assistant</i> <ul style="list-style-type: none">• Worked as a research assistant in the AMI Research Group, advised by Prof. Xinrun Wang• Conducted research on reinforcement learning and game theory; proposed a game-theoretic, scheme-free framework for generalization in reinforcement learning, Paper	Singapore, Singapore

SKILLS

Robot Hardware	Franka Emika Panda, UFactory xArm 7, UFactory Lite 6, CloudGripper
Programming	Python, C++, MATLAB, R
Developing Tools	ROS/ROS2, MuJoCo, CoppeliaSim, Onshape, Codex
Languages	Chinese (native), English (GRE 324; IELTS 7.5)