

Linfeng Fan

Verifiable world models for embodied agents

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01 / PROFILE

Research profile

I study how agents can ground decisions in the right evidence, detect when that evidence is insufficient, and make targeted corrections before acting.

CURRENT ROLE	Undergraduate researcher
AFFILIATION	Gaoling School of Artificial Intelligence, Renmin University of China
RESEARCH QUESTION	How can an agent recognize when its evidence is no longer sufficient for action, then correct the right part of its state instead of continuing blindly?
LONG-TERM GOAL	Self-correcting dexterous manipulation through latent predictive world models.

02 / RESEARCH

Research areas

01 Predictive world models for embodied agents

Build compact latent states grounded in vision, proprioception, and contact, with the long-term goal of self-correcting dexterous manipulation.

02 Evidence-grounded agent systems

Trace which evidence may control an action, and detect when environmental change breaks an operational obligation rather than merely changing an incidental value.

03 Reliable multimodal reasoning

Locate spatiotemporal evidence at the decoding layers where video grounding can still be repaired, then test inconsistent temporal reasoning.

Preprints

2026 CO-FIRST AUTHOR (EQUAL CONTRIBUTION)	The Granularity Mismatch in Agent Security: Argument-Level Provenance Solves Enforcement and Isolates the LLM Reasoning Bottleneck <u>Linfeng Fan</u> [*] , Ziwei Li [*] , Yuan Tian, Yichen Wang, Rongsheng Li, Xiong Wang [†] arXiv preprint · 2605.11039 ARXIV RECORD ↗	01
2026 FIRST AUTHOR	Skill Drift Is Contract Violation: Proactive Maintenance for LLM Agent Skill Libraries <u>Linfeng Fan</u> , Yuan Tian, Ziwei Li, Zhiwu Lu [†] arXiv preprint · 2605.10990 ARXIV RECORD ↗	02
2026 FIRST AUTHOR	STEAR: Layer-Aware Spatiotemporal Evidence Intervention for Hallucination Mitigation in Video Large Language Models <u>Linfeng Fan</u> , Yuan Tian, Ziwei Li, Zhiwu Lu [†] arXiv preprint · 2604.03045 ARXIV RECORD ↗	03

★ EQUAL CONTRIBUTION · † CORRESPONDING AUTHOR

Research & projects

APR. 2026-PRESENT BEIJING, CHINA	BEIJING NOETIX ROBOTICS TECHNOLOGY GROUP CO., LTD. Dexterous-Hand and Humanoid Embodied Intelligence Project Lead · Advisor: Eric Tian Real-system work spanning dexterous-hand policy training, cross-platform integration, and ongoing work toward joint G1 whole-body and dexterous-hand training. - COMPLETED Trained a Wuji dexterous hand mounted on a Tianji robotic arm across multiple manipulation tasks using NVIDIA GROOT. - COMPLETED Migrated and integrated the same Wuji hand onto a Unitree G1 humanoid and coupled it with the team's GMT control stack. - IN PROGRESS Extending the system toward joint G1 whole-body and dexterous-hand training, with iterative work on coordination, manipulation, and robustness. - PLANNED Planning a HumanEgo-inspired wearable-glasses demonstration and human-to-dexterous-hand retargeting pipeline to reduce task-specific real-robot demonstration collection.
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JUN.-AUG. 2025
BEIJING, CHINA

RUC-HUHA HUMANOID ROBOT TEAM

Bimanual Teleoperation System and Sim-to-Real Deployment

Deputy Captain

Contributed to integration, real-robot debugging, and coordination for an 11-person humanoid robotics team.

- COMPLETED** Built and debugged the VR-to-ROS teleoperation pipeline, including relative coordinate mapping and proportional workspace scaling for dual-arm control.
- COMPLETED** Contributed to MoveIt2-based bimanual motion planning and sim-to-real deployment, including execution deviation, workspace, collision-avoidance, and safety debugging.

05 /
EDUCATION

Education

SEP. 2023-JUN. 2027 (EXPECTED)	Renmin University of China Bachelor of Science in Artificial Intelligence · Elite Talent Training Program Gaoling School of Artificial Intelligence · Beijing, China	GPA 3.7/4.0
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06 / HONORS

Selected honors

2025	World Humanoid Robot Games RUC-HUHA Humanoid Robot Team	2nd Place (Team)
2024	National Undergraduate Mathematical Modeling Contest	First Prize, Beijing Division
2024	National Undergraduate Innovation and Entrepreneurship Training Program	Beijing Outstanding Project Grant