

Yanheng Zhu (朱彦恒)

Embodied AI | Robot Navigation | Vision-Language-Action Systems
Shanghai, China | yz11502@nyu.edu | yanhengzhu.com | LinkedIn | GitHub

Education

New York University Shanghai | B.S. in Computer Science

Sep. 2024 - May 2028

- **Coursework:** Data Structures, Machine Learning, Computer Vision, Linear Algebra, and Operating Systems.

Research Experience

Student Research Assistant | NYU Shanghai

2026 - Present

Advised by Prof. Li Guo | In collaboration with Prof. Yi Fang (NYU Abu Dhabi)

MemNav: Certified Episodic Compass for Monocular Continual ImageGoal Navigation

Sep. 2026 - Present

Lead Author | Manuscript in preparation; ICRA 2027 target

- Lead the CEC paper and research; DINO retrieval plus LingBot geometry gate causal RGB memory for a frozen NavDP. Built Habitat/Go2 protocols with explicit abstention and separate safety control.

TopoFocus: Visual-Context Pruning for Cooperative ObjectNav

Aug. 2026

Real-Robot Systems and Evaluation | AAI submission under review

- Owned a **heterogeneous real-robot deployment** on a Unitree Go2 and wheeled robot: cross-robot calibration, shared semantic mapping, VLM coordination, TinyNav/A*, expiring goals, and fail-closed safety.
- Audited **20 formal trials across four scenes** and deployed the 1600-to-256-token interface; the full method reached **HM3D SR 0.767, SPL 0.445 and MP3D SR 0.619, SPL 0.384**, with about **1.9x faster** planning.

G³VLA: Geometric Inductive Bias for VLA Models

May 2026

Research Contributor | CoRL 2026 submission; rebuttal completed

- Contributed camera-ray embeddings, PROPE, cross-view fusion, pi3X distillation, and evaluation; the full method raised pi0 LIBERO average from **84.6% to 88.1%** and OOD pouring from **70.8-75.0% to 83.3-87.5%**.

Bounded-Context Planning for Multi-Robot ObjectNav

Aug. 2026

Research Contributor | AAI submission under review

- Contributed semantic-spatial grouping, target-conditioned context, robot selection, and Jetson evaluation; cut median input **84%** and p95 latency **14x**, retaining HM3D/MP3D SR/SPL **72.8/40.2** and **57.6/34.4**.

Robotics Engineering

RoboMaster Sentry Autonomy, Radar & Embedded Integration

Sep. 2024 - Present

Algorithm Team Lead | ROS2, C, SLAM, Nav2, STM32

- Led sentry autonomy and radar integration across armor perception, FAST-LIO2/Nav2 navigation, BehaviorTree.CPP, and STM32F407/FreeRTOS control.

- Built LiDAR-camera/Kalman fusion (**0.036 m alignment RMSE**) and validated **≥90% success over 20 indoor navigation trials** with **≤0.2 m** goal error.

Selected Projects

Go2 Monocular Visual Navigation: LingBot + TinyNav

Jun. 2026 - Present

- Ported TinyNav to Go2 with single-RGB LingBot depth, HLoc, ROS2 control, and safety stops; persistent KV-cache cut latency from 2,430 to 106 ms/frame (**22.9x**), with **96% relocalization fire rate** and **5.5 cm median map-relative consistency** on self-recorded bags.

2026 MCM Problem C | Data With The Stars

Jan. 2026

- Reconstructed latent fan votes across 34 seasons and 299 elimination weeks with multi-start SLSQP; achieved **88.96%** backtest and **97.99%** LightGBM historical consistency, earning **Meritorious Winner**.

Mono2Sim-GS: RGB Real-to-Sim Reconstruction

Dec. 2025

- Combined cuVSLAM, LingBot-Map, and GenWildSplat into LingBot-Guided Gaussian Splatting, evaluated on a synchronized **301-frame** indoor sequence.

Awards & Leadership

RoboMaster: Algorithm Lead; help NYU Tandon VIP ARC Robotics build robots; ARC is adopting my open-source sentry stack; collaborate through The Great Lakes toward DJI RMUC 2027; RMUL Third Prize; 3V3 Infantry Group Second Prize

Additional: NYU Shanghai LEAD Facilitator; VEX U regional awards; collegiate Go representative

Technical Skills

Programming / Systems: Python, C; PyTorch, OpenCV, TensorRT; Linux, Docker

Robotics / Simulation: ROS2, SLAM, Sensor Fusion, 3D Reconstruction, Gaussian Splatting; Isaac Lab, Isaac Sim

Hardware / Languages: STM32/FreeRTOS, Jetson, 3D Printing; Mandarin; English (CET-6 602; GRE 170Q/155V)