

# TIANHAO ZANG

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B.Eng. Computer Science & Artificial Intelligence (CSAI)  
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## EDUCATION

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**University of Nottingham Ningbo Campus** *Sept. 2024 – 2026*  
B.Eng. (Hons) in Computer Science & Artificial Intelligence  
Current GPA: **4.0**

**University of Nottingham Jubilee British Campus** *Sept. 2026 – 2028*  
B.Eng. (Hons) in Computer Science & Artificial Intelligence

## RESEARCH EXPERIENCE

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**East Lab, Eastern Institute of Technology (EIT)** Feb. 2025 – Present  
*Research Assistant, under Prof. Wei Zhang* *Ningbo, China*

- **RGB-to-LiDAR Navigation (Lead Researcher):** Built a monocular RGB-to-point-cloud pipeline with **Depth Anything**, replacing LiDAR and delivering stable **20 Hz** navigation input. Paper: *CeRLP: A Cross-embodiment Robot Local Planning Framework for Visual Navigation*. Submitted to **IEEE Transactions on Robotics**.
- **FastDSAC for Robot Navigation (Core Developer):** Ported **DCLP** to **NVIDIA Isaac Lab** and built a GPU-parallel **Blender/Isaac/PyTorch** sim-to-real pipeline, cutting training time from ~2–3 days to ~8 hours. Paper: *FastDSAC: Unlocking the Potential of Maximum Entropy RL in High-Dimensional Humanoid Control*.
- **Quiet Gait for Quadrupeds:** Penalised touchdown velocity in the RL **reward function**, reducing foot-strike noise while preserving stability. Planned paper: *Quiet Gait for Quadruped Robots*.
- **Cross-Embodiment Local Planning (Sole Researcher):** Developing a joint depth/**LaserScan** model from RGB. Deployed learned policies on physical Unitree Go2 (quadruped) and Turtlebot2 platforms, achieving robust locomotion across challenging terrains.. Paper: *AgniNav: Towards Cross-Embodiment Local Planning for Embodied Robot Navigation*. Submitted to **IEEE Robotics and Automation Letters (R-AL)**.

**Computer vision and perception Lab, UNNC** Mar. 2024 – 2025  
*Research Assistant, under Prof. Jianfeng Ren* *Ningbo, China*

- Investigate **abstract visual reasoning** with focus on Bongard Problems, Raven Progressive Matrices and extrapolation tasks.
- Participated in works on **contrastive-learning**-based few-shot pipeline for *Machine Number Reasoning*. paper accepted at **AAAI 2025**: *DARR: A dual-branch arithmetic regression reasoning framework for solving machine number reasoning*.
- Participated in works on solving compositional visual relations problems. Related papers published in **IEEE TMM**: *Predictive Reasoning with Augmented Anomaly Contrastive Learning for Compositional Visual Relations*.

## TECHNICAL STRENGTHS

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<b>Programming Languages</b>	Python, C++, C, Bash
<b>Deep-Learning Frameworks</b>	PyTorch, TensorFlow
<b>Computer-Vision Toolkits</b>	OpenCV, MMDetection, Depth Anything, YOLOv5/v8
<b>Robotics &amp; Simulation</b>	ROS 2, NVIDIA Isaac Lab / Isaac Sim, Gazebo, Nav2, Unitree Go2 SDK, Wheeled-legged Control, Sim-to-Real Transfer, URDF/MJCF modeling.
<b>Algorithms</b>	CNNs, Transformers, Contrastive Learning, Deep RL (DQN, PPO, TD3, SAC)
<b>Tools / Platforms</b>	Git, Linux (Ubuntu), CUDA, Docker
<b>Soft Skills</b>	Technical writing, independent research, team leadership, bilingual (English / Mandarin)