

Zheyu Zhuang

Postdoctoral Researcher in Robot Learning

roboticist.zheyu@gmail.com | [Google Scholar](#) | [LinkedIn](#)

Postdoctoral researcher in robot learning at KTH Royal Institute of Technology, working with Professor Danica Kragic. I develop visuomotor policies for real-world manipulation and study how action-relevant representations can remain reliable across changes in visual appearance, spatial configuration, camera viewpoint, and robot embodiment. I approach embodied AI as an end-to-end systems problem, connecting policy design with data collection, multimodal perception, control, evaluation, and deployment on physical robots. I completed a PhD in Robotics at the Australian National University under Professor Robert Mahony.

Academic Employment

Postdoctoral Researcher

2023–Present

KTH Royal Institute of Technology

Supervisor: Professor Danica Kragic

Education

PhD, Robotics

2017–2022

Australian National University

Australian Centre of Excellence for Robotic Vision

Supervisor: Professor Robert Mahony

BSc, Electronic and Communication Engineering; Mechatronics (Double Major)

2013–2016

Australian National University

First Class Honours

Research Interests

Robot learning, visuomotor policy learning, imitation learning, robotic manipulation, computer vision, embodied intelligence, human centred embodied AI.

Research and Technical Profile

Robot learning

Design, train, and evaluate visuomotor policies across simulation and hardware, including vision-language-action (VLA) fine-tuning, with emphasis on imitation learning, data efficiency, robustness, and generalisation.

Multimodal perception

Combine RGB, depth, event cameras, point clouds, and proprioception with learned visual models including DINO, SAM, and vision-language models (VLMs).

Robotics systems

Build end-to-end systems through ROS, multi-sensor synchronisation, communication, calibration, system integration, and real-time control.

Real-robot deployment

Design data-collection and evaluation pipelines, deploy manipulation policies, and analyse sim-to-real gaps and failures across the stack.

Publications

IMITATION LEARNING, GENERALISATION, AND DATA EFFICIENCY

Wang, R., **Zhuang, Z.**, Kragic, D., and Pokorný, F. T., “PALM: Enhanced generalisability for local visuomotor policies via perception alignment.” *IEEE Robotics and Automation Letters (RA-L)*, 2026.

Zhuang, Z., Wang, R., Marchetti, G. L., Pokorny, F. T., and Kragic, D., “MirrorDuo: Reflection Consistent Visuomotor Learning from Mirrored Demonstration Pairs.” *Conference on Robot Learning (CoRL)*, 2025.

Wang, R., **Zhuang, Z.**, Jin, S., Ingelhart, N., Kragic, D., and Pokorny, F. T., “Feature Extractor or Decision Maker: Rethinking the Role of Visual Encoders in Visuomotor Policies.” *IEEE International Conference on Robotics and Automation (ICRA)*, 2025.

Zhuang, Z., Wang, R., Ingelhart, N., Kyrki, V., and Kragic, D., “Enhancing Visual Domain Robustness in Behaviour Cloning via Saliency Guided Augmentation.” *Conference on Robot Learning (CoRL)*, 2024.

Zhuang, Z., Kyrki, V., and Kragic, D., “Raising Body Ownership in End to End Visuomotor Policy Learning via Robot Centric Pooling.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.

HUMAN ROBOT INTERACTION

Zhuang, Z., Ben-Shabat, Y., Zhang, J., Gould, S., and Mahony, R., “GoferBot: A Visual Guided Human Robot Collaborative Assembly System.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2022.

CONTROL THEORY INSPIRED IMITATION LEARNING

Zhuang, Z., Yu, X., and Mahony, R., “End to end Multi Instance Robotic Reaching from Monocular Vision.” *IEEE International Conference on Robotics and Automation (ICRA)*, 2021.

Zhuang, Z., Yu, X., and Mahony, R., “LyRN (Lyapunov Reaching Network): A Real Time Closed Loop Approach from Monocular Vision.” *IEEE International Conference on Robotics and Automation (ICRA)*, 2020.

Zhuang, Z., Leitner, J., and Mahony, R., “Learning Real time Closed Loop Robotic Reaching from Monocular Vision by Exploiting a Control Lyapunov Function Structure.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2019.

WAREHOUSE PICKING SYSTEMS

Morrison, D., Tow, A. W., McTaggart, M., . . . , **Zhuang, Z.**, Lehnert, C., Reid, I., Corke, P., and Leitner, J., “Cartman: The Low cost Cartesian Manipulator That Won the Amazon Robotics Challenge.” *IEEE International Conference on Robotics and Automation (ICRA)*, 2018.

Milan, A., Pham, T., Vijay K., . . . , **Zhuang, Z.**, Lehnert, C., Lin, G., Reid, I., Corke, P., and Leitner, J., “Semantic Segmentation from Limited Training Data.” *IEEE International Conference on Robotics and Automation (ICRA)*, 2018.

3D PERCEPTION

Kennedy, G., Gao, J., **Zhuang, Z.**, Yu, X., and Mahony, R., “Learning Innovations for State Estimation.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021.

Wang, Z., Ng, Y., Pan, L., **Zhuang, Z.**, and Mahony, R., “Stereo Event Frame Camera Dataset for 3D Perception.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021.

Yu, X., **Zhuang, Z.**, Koniusz, P., and Li, H., “6DoF Object Pose Estimation via Differentiable Proxy Voting Loss.” *British Machine Vision Conference (BMVC)*, 2020.

Teaching and Supervision

Research Supervision

2017–Present

ANU and KTH

Mentored PhD students on projects leading to publications at RA-L and ICRA, and supervised undergraduate research projects resulting in a publication at IROS.

Workshop Designer and Head Tutor

2020 and 2021

Robotic Vision Summer School

Designed and developed a workshop series integrating SLAM and learning based object detection into real world robots. Parts of the workshop content were later incorporated into the Intelligent Robotics course (ECE4078) at Monash University.

Teaching Assistant

2017–2021

Systems Engineering, Robotics, and Computer Vision

Undergraduate and Graduate Courses

Delivered tutorials, demonstrated laboratory content, and supported students' understanding of course material.

Professional Service

Associate Editor

2025–2026

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

Reviewer

IEEE RA-L, IEEE T-RO, RSS, CoRL, ICRA, and IROS

Awards

Best Team Project

2020

Australian Centre of Excellence for Robotic Vision Annual Symposium

Best Technical Demo

2019

Australian Centre of Excellence for Robotic Vision Annual Symposium

Amazon Robotics Challenge, First Place

2017

Team ACRV

Hand eye calibration correspondent

References

Professor Danica Kragic

Postdoctoral Supervisor

dani@kth.se

Professor Robert Mahony

PhD Supervisor

robert.mahony@anu.edu.au

Mr. Nick Heppert

Research Collaborator

heppert@cs.uni-freiburg.de