

# Zhiye Zhao (Caesar Zhao)

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## Career Objective

To secure a position as an Embodied Intelligence Robotics Engineer at Unitree, leveraging my expertise in robotics, control systems, and machine learning to develop cutting-edge, intelligent robotic solutions. I am eager to contribute to breakthrough innovations in motion control and artificial intelligence, collaborating with a forward-thinking team to advance the future of embodied robotics.

## Education

**Postgraduate** **August 2023 - June 2025**  
**University of Technology Sydney (UTS)**

- Master of Professional Engineering, Robotics

**Undergraduate** **September 2017 - June 2021**  
**Hunan Institute of Technology**

- Mechanical Design Manufacture and Automation Major

## Work Experience

**Teaching Assistant (Online, Part time)** **August 2024 - Present**  
**13th Floor, Building 1, Qianfan Jingxian (Beijing) Technology, Beijing, China**  
*a high-tech company specializing in robotics and AI*

- Provided academic support by answering student inquiries, ensuring a deeper understanding of robotics.
- Evaluated and graded assignments with constructive feedback, improving student performance and engagement.
- Updated course materials and project content to align with latest industry trends, enhancing learning experience.

## Internships

**Research & Development Engineer** **November 2024 - February 2025**  
**Optik Consultancy -- Soil Moisture Sensor**

- Designed and developed a high-precision soil moisture sensor for agricultural and environmental monitoring applications.
- Conducted research on sensor calibration, data acquisition, and multi-sensor fusion techniques to enhance measurement accuracy.
- Collaborated with a multidisciplinary team to optimize sensor casing, circuit board design, and probe performance for field deployment.

## Academic Projects

**Tripedal Climbing Robot – State Estimation** **August 2023 - November 2024**  
**University of Technology Sydney (UTS)**

- Developed an Extended Kalman Filter (EKF) for state estimation, integrating IMU, encoder, and kinematic equations to improve motion tracking.

- Designed a multi-sensor fusion framework, ensuring accurate estimation of position, velocity, orientation (quaternion), and IMU bias.
- Implemented kinematic modeling and encoder-based feedback, reducing estimation drift and improving localization accuracy.
- Validated performance using PyDrake, Gazebo, and MATLAB, refining the estimation model for real-world deployment.

## Technical Skills

- Programming Languages: C++, Python
- Operating Systems: Linux (Ubuntu), Windows
- Software & Tools: MATLAB, Microsoft Office Suite, Gazebo, PyBullet, Isaac Sim, Mujoco, Meshcat
- Robotics: State Estimation, Motion Planning & Control, Robot Operating System (ROS1 & ROS2), Kinematics & Dynamics, Robot Perception
- Artificial Intelligence: Supervised Learning, Unsupervised Learning, Reinforcement Learning, Learning-Based Control (ACT), AI Frameworks (PyTorch, TensorFlow)

## Additional Skills

- Decision Making & Project Management: Led research and development projects, optimizing workflows and achieving key milestones on time.
- Critical Thinking & Problem Solving: Diagnosed and resolved complex robotics and AI challenges, improving system performance.
- Team Collaboration & Leadership: Coordinated cross-functional teams in research and teaching environments, fostering knowledge exchange.
- Creativity: Designed visually appealing presentations that effectively communicated complex concepts to clients.
- Adaptability & Innovation: Quickly learned new technologies and methodologies to enhance robotics applications and decision-making models.
- Other Languages: Mandarin, English

## Referees

Available upon request