Yue Zhang

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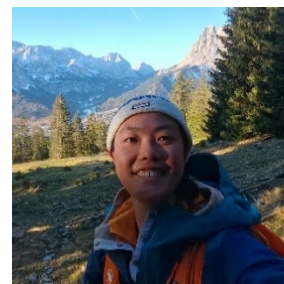
ACADEMIC REFERENCE

Fan Wu, Research Scientist, Munich Institute of Robotics and Machine Intelligence	Fan.de.wu@pm.me
Kejia Chen, PhD Candidate, Chair of Robotics, Aritificial Intelligence and Real-time Systems	kejia.chen@tum.de

EDUCATION

M.Sc., Medical Technology, Technical University of Munich	04/2023 – Present
M.Sc., Mechatronics and Robotics, Technical University of Munich	04/2022 – Present

Main Courses: Robot Dynamics, Modern Control, Optimal Control, Nonlinear Control, Reinforcement Learning, Programming and Control for Human-Robot Interaction

State Examination, Dentistry, Heidelberg University, Germany	10/2021 – 03/2022

Main Courses: Anatomy, Medical Terminology

B.Eng, Mechanical Engineering, Shanghai Jiao Tong University, China	09/2016 – 07/2020

INTERNSHIP

Chair of Cyber-Physical Systems, TUM (Germany)

Student Research Assistant, Advisor: Julian Balletshofer   05/2025 – Present

- Implemented energy-based pHRI control algorithms; deployed and validated the algorithms on a real robot.

Chair of Robotics, Artificial Intelligence and Real-time Systems, **KI Fabrik (AI Factory)**, TUM (Germany)

Student Research Assistant and Master Thesis Student, Advisor: Kejia Chen   02/2024 – Present

- Teleoperation System Development:
  - Built a VR-based dual-arm teleoperation system using HTC VIVE and Franka Emika Panda robots;
  - Enhanced haptic feedback control with sigma.7 device; collected and analyzed teleoperation data;
  - Programmed skill-based robotic actions on the MIOS platform, including contact-rich manipulation and robot-to-robot telepresence;
  - Migrated ROS2 controllers to MIOS environment.
- Haptic Sensing & Object State Estimation:
  - Integrated external force sensors into MIOS for real-time feedback;
  - Used visual-tactile sensors to estimate the state of linear deformable objects;
- Deformable Linear Object (DLO) Handling:
  - Developed a generalized control framework for DLO manipulation with a focus on spatial obstacle avoidance.
  - Designed algorithms that consider the unique physical properties of DLOs during motion planning and execution.
- Other Contributions:
  - Performed robot hand-eye calibration, 3D reconstruction, and 6D pose estimation.
  - Assisted with web development tasks for visualization and interface design.

🔗 *Details and project demos available on my personal website:* https://timechloe.github.io/

Siemens Healthineers, Innovation Center, Shanghai (China), Mentor: Xinyue Man   10/2023 – 02/2024
- Prototyping: Designed and developed a prototype autonomous mobile base for Digital Radiography (DR), planning movement routes based on the DR examination room layout; created a remotely controllable, obstacle-avoidant, and autonomous tracking chair base.
- Market Research: Explored the surgical robotics market, focusing on the technological approaches of puncture and orthopedic robots; evaluated potential collaborations between these robots and Siemens imaging equipment.

The First Affiliated Hospital of Naval Medical University, Shanghai (China)   07/2019 – 08/2019
- Nursing practice, large animal experiments, mechanical testing of aortic stents

PUBLICATION

[1] Kejia Chen, Zheng Shen, Yue Zhang, et al. **LEMMo-Plan: LLM-Enhanced Learning from Multi-Modal Demonstration for Planning Sequential Contact-Rich Manipulation Tasks**. [Accepted by ICRA2025]

[2] Kejia Chen, Celina Dettmering, Florian Pachler, Zhuo Liu, Yue Zhang, et al. **Multi-Robot Deformable Linear Object Assembly with Multi-Modal Perception.** [Accepted by IROS 2025]

PROJECT

Course: Programming and control for human-robot interaction, TUM   11/2024 – Present

Received the highest score in both group work (Robot Programming) and individual work (Simulation Part).
- Simulation Part: Build a 3-DOF robot in MATLAB/SIMULINK, implementing Kinematics and Dynamics, Joint Control, Collision Detection, Inverse Kinematics Control, Nullspace Optimizations, Full Cartesian Impedance Controller within it.
- Robot Programming: Implement simulation part in a real robot (KUKA LBR iiwa).

Practical Course: Introduction to ROS, TUM   04/2024 – 07/2024
- Individual: Implementing perception and offline path planning for the quadruped robot in the simulator.
- Group: Perception Pipeline, Path Planning, Trajectory Planning, Motion Planning, Obstacle Navigation, PID Control Integration

Practical Courses: Industrial Software Engineering, Embedded Systems and Robots, TUM
- Control development for the robot FORBOT A4 (Fa. Roboterwerk) on the basis of a Raspberry Pi, program a microcontroller (STM32) to implement control of the robot.

TEACHING EXPERIENCE

Teaching Assistant, Control Engineering, Automation Technology	01/2025 – Present
Teaching Assistant, Munich, Information technology	08/2024 – 12/2024
Teaching Assistant, Shanghai, System Modeling, Analysis and Control	03/2019 – 07/2019

HONORS AND AWARDS

National Encouragement Scholarship, Ministry of Education (China)	2019

SKILLS, PERSONAL INFORMATION

Programming	C/C++, Python, MATLAB/Simulink, Java, HTML/CSS/JavaScript, LaTeX
Languages	Chinese(native), English (good knowledge), German (good knowledge)
Hobby	Long-distance hiking (If you're interested, the Hengduan Mountains (my hometown) are my favorite region for hiking.), Rock Climbing, Outdoor Expeditions, Traveling around the world

Chinese Citizen