

# Zhang Jiaming

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# EDUCATION

**Tsinghua University**, Department of Computer Science and Technology, Beijing, P.R. China  
*Bachelor of Engineering in Computer Science and Technology (expected to be issued on Jul. 2026)*

- **Attended:** September 2021 - Present
  - **Cumulative GPA:** 3.75/4.0      **Credits:** 129.0
  - **Major Courses:** Data Structures, Software Engineering, Digital Logic Circuit, Introduction to Computer Systems, Theory of Computer Network, Introduction to Artificial Intelligence, Computer Organization, Principles and Practice of Compiler Construction, etc.

## HONORS & AWARDS

- Tsinghua University Science and Technology Innovation Award Oct. 2023
  - Tsinghua University Social Practice Award Oct. 2023
  - Scholarship for Freshmen of Tsinghua University Sep. 2021

## RESEARCH EXPERIENCES

Institute of Automation, Chinese Academy of Sciences

Mar. 2024 – Nov. 2024

*State Key Laboratory of Multimodal Artificial Intelligence Systems*

*Advisor: Prof. Yihong Wu*

## ◆ Project 1: 3D Scene Reconstruction, Robot Localization and Navigation

- **Description:** Integrated data from cameras, radars, and IMUs to achieve SLAM tasks, track motion trajectories, and reconstruct 3D scenes with high precision and global consistency. Used 3D point cloud maps to implement re-localization and autonomous navigation for intelligent vehicles.
  - **Responsibility:** Synthesized prior research to guide project strategy; Designed experiments enhancing 3D reconstruction accuracy; Deployed 3D reconstruction technology to the handheld scanner; Implemented re-localization and auto-navigation in intelligent vehicles; Drafted and presented initial research findings manuscript.

## ◆ Project 2: 3D Point Cloud Segmentation with Density-Aware Attention

- **Description:** Proposed a novel point cloud segmentation network that fuses density-aware local attention and global attention mechanisms, improving segmentation accuracy for small objects and categories with small sample sizes.
  - **Responsibility:** Optimized the network structure; Conducted experiments on multiple public datasets and real-scene point cloud data; Proved the effectiveness and robustness of the method; Co-authored and submitted a paper.

#### ◆ Project 3: Dynamic Modeling and Depth Control of a Sperm-Inspired Robot

- **Description:** Proposed a novel dynamic model of the sperm-inspired robot considering the interaction between helical propulsion and fluid. Designed a depth controller for the robot enabling high-precision control in complex underwater environments.
  - **Responsibility:** Estimated model parameters using MATLAB based on experimental data; Verified model accuracy through simulation experiments; Co-authored and submitted a paper.

## Institute of HCI and Media Integration, Tsinghua University

Graphics & Geometric Computing Group

Oct. 2022 – Mar. 2023

**Advisor:** Prof. Yong-Jin Liu

- **Topic:** Emotion Recognition based on EEG Signals.
- **Description:** Analyzed electroencephalogram signals using neural network models such as CNN, RNN, and DGCNN to make emotion recognition and classification.
- **Responsibility:** Conducted literature reviews; Replicated classical modeling results; Contributed to writing papers on new research findings.

## Future Robot Innovation Club, Tsinghua University

TH-MOS Robot Soccer Team

Sep. 2022 – Jul. 2023

**Advisor:** Prof. Li Liu

- **Topic:** Gait Control Study of Bipedal Humanoid Robots.
- **Description:** Developed bipedal robots' gait planning algorithms such as walking, kicking, falling, and climbing, as well as intelligent decision-making, visual recognition, and other technologies.
- **Role:** Gait group leader of TH-MOS team, RoboCup2023 event vice-captain of TH-MOS team.
- **Team Honors & Awards:**
  - RoboCup2023 Humanoid Soccer League (Kid-Size), 4<sup>th</sup> Place out of 16 teams.
  - 2023 Asia-Pacific RoboCupSoccer Humanoid Competition, First Prize.
  - 2022 China RoboCup Humanoid Soccer Competition, Third Prize.

## PUBLICATIONS

- Chade Li, Pengju Zhang, **Jiaming Zhang**, and Yihong Wu\*, Density-aware Global-Local Attention Network for Point Cloud Segmentation, **Image and Vision Computing, 2025 (Under Review)**
- Liangwei Deng, Chao Zhou\*, Zhuoliang Zhang, Xiaocun Liao, Junfeng Fan\*, Xiaofei Wang, and **Jiaming Zhang**, Modeling and Control of a Sperm-inspired Robot with Helical Propulsion, **Bioinspiration & Biomimetics, 2025**, 20(2): 026007.

## SKILLS

- **Programming Languages:** C++, C, Python, Assembly, Matlab, SystemVerilog, HTML, TypeScript.
- **Framework:** PyTorch, ROS, Django, React, Numpy, OpenCV, Autoware.
- **Tools:** Linux, Git, Docker, CMake, LaTeX, Markdown, Microsoft Word/Excel/PowerPoint.
- **English Proficiency:** TOEFL 106 (R:30, L: 27, S: 23, W:26)

## UNIVERSITY SERVICE

- Member of Tsinghua University Student Union Aug. 2022 – Jun. 2023
- Member of Tsinghua University Voluntary Teaching Group Jul. 2022
- Tsinghua University Admissions Volunteer Jun. 2022
- Leader of Tsinghua University Student Administration for classes Dec. 2021 – Jun. 2023
- Member of Tsinghua University Volunteer Group Sep. 2021 – Present