

RUNZE ZHANG

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EDUCATION

Tongji University, China <i>Bachelor of Engineering, Computer Science and Technology</i>	Sept. 2020 – Jul. 2025 GPA: 92.72 4.77/5.0
École Polytechnique Fédérale de Lausanne, Switzerland <i>Semester Exchange, Section of Computer Science</i>	Aug. 2023 – Feb. 2024 GPA: 5.36/6.0

PUBLICATIONS

1. Jie Chu*, **Runze Zhang***, Chu Yang, Zongyou Yu, Zongtao Bu, Haotian Liu, Florian Röhrbein, Alois Knoll, Guang Chen, and Changjun Jiang, "Bridging the Latency Gap with a Continuous Stream Evaluation Framework in Event-Driven Perception," in *Nature Communications*, March 2026. (* indicates equal contribution) [Link] [Code]
2. Lixuan Tang, David Rüegg, **Runze Zhang**, Anastasia Bolotnikova, Jan Rabaey and Auke Ijspeert, "Velocity Potential Field Modulation for Dense Coordination of Polytopic Swarms and Its Application to Assistive Robotic Furniture," in *IEEE Robotics and Automation Letters*, July 2025. [Link] [Code]
3. **Runze Zhang**, Tongzhou Mu, Stone Tao, Hao Su, "Learning Task Automata for Keyframe Discovery in Robotic Manipulation," *Technical Report*, February 2025. [PDF]

PROJECT EXPERIENCE (SELECTED)

Stream-based Latency-Aware Evaluation for Event-Driven Perception <i>Supervisor: Prof. Guang Chen at GEAI Lab, Tongji University</i>	Aug. 2023 – Oct. 2025 <i>Shanghai, China</i>
<ul style="list-style-type: none">• Developed the SStream-based lAtency-awaRe Evaluation (STARE) framework, which schedules the perception model to automatically sample events, and reveals their real-world performance with event streams.• Collected ESOT500, an event-based VOT dataset featuring time-aligned and high-frequency annotations (500Hz).• Introduced two simple yet effective tracker enhancement methods, Asynchronous Tracking and Context-Aware Sampling, leveraging the unique characteristics of event stream modality.• Deployed the STARE-based tracking framework on a stereo event camera system with triangulation and rule-based policy to enable high-dynamic robotic table tennis.• Accepted by <i>Nature Communications</i>, serving as co-first author [Link].	
Intelligence Assistant Environment Creation with Mobile Furniture Robots <i>Supervisor: Prof. Auke Ijspeert at Biorobotics Lab, EPFL</i>	Oct. 2023 – Present <i>Lausanne, Vaud, Switzerland</i>
<ul style="list-style-type: none">• Upgraded OpenPifPaf algorithm to enable multi-view, multi-class, and multi-object 3D pose estimation, and deployed it in a three-camera system.• Achieved real-time inference on resource-constrained devices through model lightweighting, TensorRT acceleration, and bottleneck analysis/refactoring of inference code.• Extended our Velocity Potential Field Modulation (VPFM) algorithm to 3D coordination cases with MPC to further avoid collisions and deadlocks under extreme conditions.• Co-authored a paper accepted by <i>IEEE Robotics and Automation Letters</i> (Third Author) [Link].• Preparing a submission to <i>IEEE Transactions on Robotics</i> (Second Author) for more results.	
Keyframe Discovery in Robotic Manipulation Trajectories <i>Supervisor: Prof. Hao Su at SU Lab, UCSD</i>	Apr. 2024 – Oct. 2024 <i>San Diego, California, U.S.A.</i>
<ul style="list-style-type: none">• Provided a theoretical explanation of the essence of keyframe discovery from the perspective of task success, with a multi-level task abstraction framework from continuous MDP to tabular MDP, then to DFA.• Developed the Action Removal and Action Perturbation methods to systematically extract keyframes from expert demonstrations by extending the L* algorithm of automata learning.• Validated the discovered keyframes through qualitative and quantitative experiments with ManiSkill tasks.• Wrote a technical report as the first author [PDF].	

HONORS AND AWARDS (SELECTED)

Excellent Graduate (<i>Top 10%</i>) <i>by Tongji University</i>	Jun. 2025
Excellent Student (<i>Top 5%, Three consecutive years</i>) <i>by Tongji University</i>	Dec. 2023, Dec. 2022, Dec. 2021
Excellent Undergraduate Scholarship, 1st Prize (<i>Top 5%, ¥5,000, Three consecutive years</i>) <i>by Tongji University</i>	Dec. 2023, Dec. 2022, Dec. 2021
International Exchange Scholarship, 1st Prize (¥12,000) <i>by Tongji University</i>	Jan. 2025
CCF Big Data & Computing Intelligence Contest - NAS Track, 2nd Prize (<i>Top 0.1%, ¥10,000</i>) <i>by China Computer Federation</i>	Nov. 2022

TEACHING EXPERIENCE

High-Level Language Programming I & II Courses	Sep. 2022 – Jul. 2023
<i>Teaching Assistant, Supervised by Lecturer Jian Shen, Tongji University</i>	<i>Shanghai, China</i>
<ul style="list-style-type: none">• Facilitated online Q&A sessions, focusing on the fundamentals of C/C++ and object-oriented programming.• Graded course projects and provided constructive feedback to enhance student learning.	

LEADERSHIP & VOLUNTEER EXPERIENCE

The 2st China Embodied AI Conference (CEAI 2025)	Mar. 2025
<i>Volunteer in the reward group</i>	<i>Beijing, China</i>
<ul style="list-style-type: none">• Designed certificate templates, proofread content, and organized the distribution.	
The 1st China Embodied AI Conference (CEAI 2024)	Mar. 2024
<i>Volunteer in the media group</i>	<i>Shanghai, China</i>
<ul style="list-style-type: none">• Edited and published articles on conference websites and WeChat public accounts.• Worked with journalists to organize media reports and promotional activities.	
Tongji Students' Association for Science and Technology	Sep. 2022 – Aug. 2023
<i>Vice monitor for the first Qidi class of Tongji University</i>	<i>Shanghai, China</i>
<ul style="list-style-type: none">• Assisted with member management, activity rule design, and meeting minutes.	

SKILLS

Programming Languages: C/C++, Python, MATLAB, Assembly language, Verilog HDL
Frameworks and Systems: Pytorch, Linux, Docker, Kubernetes, ROS2, Git, Vue, Springboot, Electron
Robots, Cameras and Simulation: Realman RM65-6F, DAVIS346, DVSync, MS Azure Kinect, Vicon MoCap, ManiSkill
Technical Tools: MS Office Suite (Word, Excel, PowerPoint), LaTeX, Markdown, Adobe Photoshop, Adobe Illustrator
Spoken Languages: Chinese(Native), English(IELTS band 7), French(A1)