

Jiahao Zhang

COMPUTER SCIENCE PHD CANDIDATE

Canberra, AU

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Profile

- Computer Science PhD candidate at the Australian National University; thesis submitted in Jun. 2026 and under external examination, with the degree expected in Jan. 2027.
- Research interests include human motion generation, 3D assembly understanding, multimodal learning and video understanding, and LLM memory represented through KVCache.
- Authored 8 papers at NeurIPS, CVPR, ICCV, WACV, and IROS, including 4 first-author papers; research internship experience at MetacognitionAI, MERL, and Roblox.

Education

Australian National University

Canberra, AU

DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE (CHAIR SUPERVISOR: PROF. STEPHEN GOULD)

Mar. 2022 - Jun. 2026

Thesis: *From Instructional Diagrams to 3D Assembly Understanding*. Submitted for external examination; degree expected Jan. 2027.

Australian National University

Canberra, AU

BACHELOR OF ADVANCED COMPUTING (FIRST CLASS HONOURS WITH GPA: 6.7 / 7)

Jul. 2019 - Jul. 2021

Thesis: *Video Annotation Tool and Human Action Recognition for IKEA Assembly Dataset*

Shandong University

Weihai, China

BACHELOR OF COMPUTER SCIENCE AND TECHNOLOGY (GPA: 87.2 / 100)

Sep. 2017 - Jul. 2019

Experience

MetacognitionAI

Australia (Remote)

RESEARCH INTERN (SUPERVISOR: PROF. STEPHEN GOULD)

Jul. 2026 - Oct. 2026

Studied compressible, composable KVCache memory for LLMs, agents, and VLAs; formulated the problem, designed experiments, validated prototypes, and implemented context composition, occupancy measurement, and visualization.

Mitsubishi Electric Research Laboratories

Cambridge, US

RESEARCH INTERN (SUPERVISORS: DR. TIM K. MARKS, DR. ANOOP CHERIAN)

Oct. 2025 - Mar. 2026

Built and evaluated *AssemblyDyna* to jointly predict assembly order, final poses, and 6-DoF trajectories from multimodal manuals and 3D point clouds. On the 2,789-object *AssemblyBench*, it improved final-pose success by 12% and achieved roughly 33% physics-simulation success versus a 3% baseline; co-authored the CVPR 2026 paper. Implemented and trained *StepPA*, running pilot experiments on accumulated-error mitigation in autoregressive assembly.

Roblox

San Mateo, US

RESEARCH INTERN (SUPERVISORS: PROF. MUBBASIR KAPADIA, DR. ITZIK BEN-SHABAT)

July 2025 - Oct. 2025

First-authored and led *RoMo* end to end, distilling roughly 14 years of raw video into 820K+ text-conditioned 3D motions spanning 1,237+ hours and designing a 54-category, 2,065-subcategory taxonomy; published at CVPR 2026. Independently built *ProjectMay* across nearly 100 servers, cutting an estimated three-month pipeline to about two weeks and continuing to support *RoMo Hands*. Contributed to *Motion Toolbox* for motion processing, quality evaluation, visualization, dataset construction, and model evaluation.

The Australian National University

Canberra, AU

RESEARCH ASSISTANT (COLLABORATOR: DR. MINJEONG SHIN; SUPERVISOR: PROF. LEXING XIE)

May 2022 - Sep. 2022

Containerized the front-end and back-end services for InfluenceMap and CSMetrics with Docker, and implemented website health, traffic monitoring, and alerting.

Inspur

Jinan, China

INTERN SOFTWARE DEVELOPMENT ENGINEER (SUPERVISOR: MS. XUEJIAO QIN)

Nov. 2019 - Jan. 2020

Developed a configuration-driven plugin management system for server clusters with Cpp Micro Services, implementing plugin definitions, dependency resolution, ordered startup, and cyclic-dependency detection.

Shandong University

Weihai, China

FULL-STACK WEB DEVELOPER (SUPERVISORS: PROF. HAO YUAN)

Feb. 2018 - Jul. 2019

Served as a core developer and maintainer of a large construction-project CMS supporting the full project lifecycle; independently built a college appointment system to resolve booking contention; maintained the school's ACM Virtual Judge platform, which handled tens of thousands of submissions.

Publications

CONFERENCE PROCEEDINGS

RoMo Hands: A Large Scale Richly Organized Text to Hand Motion Dataset	NeurIPS
Yizhak Ben-Shabat, Jiahao Zhang , Joseph Liu, Seonghyeon Moon, Young-Yoon Lee, Haomiao Jiang, Oren Jacob, Mubbasir Kapadia	2026
AssemblyWorld: Rethinking 3D Assembly with General-Purpose Agents	ArXiv
Jiahao Zhang [†] , Yeying Fan [†] , Moitrey Chatterjee, Suhas Lohit, Bernhard Egger, Tim K. Marks, Anoop Cherian, Stephen Gould	2026
RoMo: A Large-Scale, Richly Organized Dataset and Semantic Taxonomy for Human Motion Generation	CVPR
Jiahao Zhang , Joseph Liu, Young-Yoon Lee, Seonghyeon Moon, Victor Zordan, Guy Tevet, Karen Liu, Stephen Gould, Oren Jacob, Haomiao Jiang, Mubbasir Kapadia, Yizhak Ben-Shabat	2026
AssemblyBench: Physics-Aware Assembly of Complex Industrial Objects	CVPR
Danrui Li, Jiahao Zhang , Bernhard Egger, Moitrey Chatterjee, Suhas Lohit, Tim K. Marks, Anoop Cherian	2026
Manual-PA: Learning 3D Part Assembly from Instruction Diagrams	ICCV
Jiahao Zhang , Anoop Cherian, Cristian Rodriguez, Weijian Deng, Stephen Gould	2025
Pos3R: 6D Pose Estimation for Unseen Objects Made Easy	CVPR
Weijian Deng, Dylan Campbell, Chunyi Sun, Jiahao Zhang , Shubham Kanitkar, Matthew E. Shaffer, Stephen Gould	2025
Temporally Grounding Instructional Diagrams in Unconstrained Videos	WACV
Jiahao Zhang , Frederic Z Zhang, Cristian Rodriguez, Yizhak Ben-Shabat, Anoop Cherian, Stephen Gould	2025
Aligning Step-by-Step Instructional Diagrams to Video Demonstrations	CVPR
Jiahao Zhang , Anoop Cherian, Yanbin Liu, Yizhak Ben-Shabat, Cristian Rodriguez, Stephen Gould	2023
GoferBot: A Visual Guided Human-Robot Collaborative Assembly System	IROS
Zheyu Zhuang [†] , Yizhak Ben-Shabat [†] , Jiahao Zhang , Stephen Gould, Robert Mahony	2022

[†] Equal contribution.

Academic Activity

The Australian National University

TEACHING ASSISTANT	2022 - 2024
• 2024 S2: COMP8536 - Advanced Topics in Deep Learning for Computer Vision (Course Convenor: Prof. Stephen Gould). • 2024 S1: COMP4528/COMP6528 - Computer Vision (Course Convenor: Prof. Dylan Campbell). • 2023 S1: COMP2420 - Introduction to Data Management, Analysis and Security (Course Convenor: Prof. Matthew Hole). • 2022 S2: COMP4650 - Document Analysis (Course Convenor: Prof. Lexing Xie). • 2022 S2: COMP3670 - Introduction to Machine Learning (Course Convenor: Prof. Liang Zheng).	
Reviewer	CVPR'26, ECCV'26, NeurIPS'25-26, WACV'25, CVPRW'25 MAR, NeurIPSW'25 MAR

Awards

Mar. 2022	ANU Postgraduate Research Scholarship	Canberra, AU
May 2021	ANU Chancellor's Letter of Commendation	Canberra, AU
Nov. 2020	1st Place , SDU Scholarship of Studying Abroad	Weihai, China
Jul. 2019	1st Place , SDU Scholarship of Abroad Special	Weihai, China
Jul. 2019	3rd Place , SDU Scholarship of University	Weihai, China
Jul. 2018	2nd Place , SDU Research and Innovation Scholarship	Weihai, China
Jul. 2018	3rd Place , SDU Scholarship of University	Weihai, China
Jun. 2018	2nd Place , LanQiao Programming Competition	Weihai, China