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I am a third-year Ph.D. student in Computer Science at the Australian Institute for Machine Learning, University of Adelaide. My current research focuses on **Video World Models and Controllable Content Generation**.

Education

Doctor of Philosophy, Computer Science University of Adelaide Topic: Controllable video/image generative models. <i>Supervisors:</i> Prof. Lingqiao Liu , Dr. Xinyu Zhang	Sep 2023 – Present Adelaide, Australia
Master of Machine Learning and Computer Vision Australian National University Thesis topic: Multi-view 3D understanding systems for object detection. <i>Thesis advisor:</i> Prof. Liang Zheng <ul style="list-style-type: none">Grade: 90/100, Highly Distinct.	Jul 2020 – Jul 2023 Canberra, Australia
BSc Computer Sciences with A.I. University of Nottingham Ningbo China Thesis topic: Roadside camera detection system for safe traffic. <i>Thesis advisor:</i> Dr. Zheng Lu	Sep 2016 – Jul 2020 Ningbo, China

Experiences

Research Intern @ Token Foundry, Alibaba Topic: Generative World Modeling. <i>Supervisor:</i> Dr. Xinlong Wang , Mr. Fan Zhang <ul style="list-style-type: none">Generative video world modeling, investigating memory mechanism for video modeling,	May 2026 – Present Beijing, China
Research Intern @ DAMO Academy, Alibaba Topic: Multi-modal image generation/editing. <i>Supervisor:</i> Dr. Hao Luo <ul style="list-style-type: none">Investigated Chain-of-Thought for multi-modal progressive (multi-granularity) image object removal.	Jan 2025 – Apr 2025 Hangzhou, China
Research Intern @ Canva Topic: Controllable image generation. <i>Supervisors:</i> Mr. Ethan Smith , Prof. Martin Bell <ul style="list-style-type: none">Setup and developed the foundational codebase for customized generation.Developed the ControlNet modules for the Leonardo.AI Phoenix Model.	Feb 2024 – Jul 2024 Sydney, Australia
Research Intern @ Institute of Automation, Chinese Academy of Sciences Topic: Multi-view 3D understanding systems for object detection. <i>Supervisors:</i> Prof. Haoran Li , Prof. Dongbin Zhao <ul style="list-style-type: none">Developed roadside multi-camera detection systems for the RoboMaster AI Challenge scene.Participated in ICRA 2021 RoboMaster Competition and won the Second Prize as a team member representing the Institute of Automation, Chinese Academy of Sciences.	Dec 2020 – Dec 2021 Beijing, China

Research Outputs

Topic: Generative World Modeling

- LiveWorld: Simulating Out-of-Sight Dynamics in Generative Video World Models**
Zicheng Duan*, Jiatong Xia*, Zeyu Zhang*, Wenbo Zhang, Gengze Zhou, Chenhui Gou, Yefei He, Feng Chen, Xinyu Zhang, Lingqiao Liu
European Conference on Computer Vision (ECCV), 2026.
- Points-to-3D: Structure-Aware 3D Generation with Point Cloud Priors**
Jiatong Xia*, Zicheng Duan*, Anton van den Hengel, Lingqiao Liu
Computer Vision and Pattern Recognition Conference (CVPR), 2026.

- [3] **VQ-VA World: Towards High-Quality Visual Question-Visual Answering**
Chenhui Gou*, Zilong Chen*, Zeyu Wang*, Feng Li, Deyao Zhu, **Zicheng Duan**, Kunchang Li, Chaorui Deng, Hongyi Yuan, Haoqi Fan, Cihang Xie, Jianfei Cai, Hamid Rezaatofghi
Computer Vision and Pattern Recognition Conference (CVPR), 2026.

Topic: Controllable Content Generation

- [4] **EZIGen: Enhancing zero-shot personalized image generation with precise subject encoding and decoupled guidance**
Zicheng Duan, Yuxuan Ding, Chenhui Gou, Ziqin Zhou, Ethan Smith, Lingqiao Liu
British Machine Vision Conference (BMVC), 2025.
- [5] **Training-free motion-guided video generation with enhanced temporal consistency using motion consistency loss**
Xinyu Zhang, **Zicheng Duan**, Dong Gong, Lingqiao Liu
British Machine Vision Conference (BMVC), 2025.
- [6] **Let Your Video Listen to Your Music!**
Xinyu Zhang, Dong Gong, **Zicheng Duan**, Anton van den Hengel, Lingqiao Liu
ACM International Conference on Multimedia (ACM MM), 2025.
- [7] **Frame-wise Conditioning Adaptation for Fine-Tuning Diffusion Models in Text-to-Video Prediction**
Zheyuan Liu, Junyan Wang, **Zicheng Duan**, Cristian Rodriguez-Opazo, Anton van den Hengel
Transactions on Machine Learning Research (TMLR), 2024.

Topic: 3D Multiview Detection

- [8] **Multiview Detection with Cardboard Human Modeling**
Jiahao Ma*, **Zicheng Duan***, Liang Zheng, Chuong Nguyen
Asian Conference on Computer Vision (ACCV), 2024.
- [9] **Voxelized 3D Feature Aggregation for Multiview Detection**
Jiahao Ma, Jinguang Tong, Shan Wang, Wei Zhao, **Zicheng Duan**, Chuong Nguyen
International Conference on Digital Image Computing: Techniques and Applications (DICTA), 2024.
- [10] **Neurons perception dataset for Robomaster AI challenge**
Haoran Li, **Zicheng Duan**, Jiaqi Li, Mingjun Ma, Yaran Chen, Dongbin Zhao
International Joint Conference on Neural Networks (IJCNN), 2022.
- [11] **MVM3Det: A Novel Method for Multi-view Monocular 3D Detection**
Haoran Li, **Zicheng Duan**, Mingjun Ma, Yaran Chen, Jiaqi Li, Dongbin Zhao
arXiv preprint, 2021.

Others

- [12] **ABCP: Automatic blockwise and channelwise network pruning via joint search**
Jiaqi Li, Haoran Li, Yaran Chen, Zixiang Ding, Nannan Li, Mingjun Ma, **Zicheng Duan**, Dongbin Zhao
IEEE Transactions on Cognitive and Developmental Systems (TCDS), 2022.

Academic Services & Invited Talks

Conference Reviewer: CVPR, AACL, NeurIPS, ICASSP.

Invited Talk: *Controllability Matters: Interpreting World Models from a Controllability Perspective*, DICTA 2025 Workshop: [Visual Generative Models: Past, Present, and Future](#).