WEIJIAN DENG

Assistant Professor ◇ Shenzhen International Graduate School, Tsinghua University
Homepage: wdengthusz.xyz ◇ dengwj16@sz.tsinghua.edu.cn ◇ Google Scholar

EDUCATION

Australian National University, Australia *Jul 2019 - Jan 2023*
Doctor of Philosophy in Computer Science
Research Topic: Unsupervised Model Evaluation
Supervisors: Prof. Stephen Gould (ARC Future Fellow) and A.P. Liang Zheng (ARC Future Fellow)

University of Chinese Academy of Sciences, China *Sep 2016 - Jun 2019*
Master of Science in Computer Science
Research Topic: Domain Adaptive Object Recognition
Supervisor: Prof. Jianbin Jiao and Prof. Qixiang Ye

Beijing Jiaotong University, China *Sep 2012 - Jun 2016*
Bachelor of Engineering

EMPLOYMENT HISTORY

Shenzhen International Graudate School, Tsinghua University *June 2026 - Present*
Assistant Professor
Self-Evaluating and Self-Improving Agents
Model Generalization and Reliability Analysis
3D Vision and Spatial Intelligence

Australian National University, Australia *Jan 2023 - May 2026*
Research Fellow on 3D Modeling & Generation
Collaborating with RIOS Intelligent Machines, Inc.
Advisor: Prof. Stephen Gould (ARC Future Fellow)

NEC Laboratories America, INC. *Jun 2020 - Sep 2020*
Research Intern on Multi-task Learning
Hosted by Dr. Yumin Suh and Prof. Manmohan Chandraker

SELECTED PUBLICATIONS

Summary. Published over 30 papers in top computer vision and machine learning venues such as CVPR (×6), ICCV (×5), ICML (×6), NeurIPS (×4), and TPAMI (×2). Google Scholar Citations = 3,500.

I. Generation & Reconstruction

[1] Weiyan Chen, **Weijian Deng**, Yao Xiao, Weijie Tu, ZiYi Dong, Ibrahim Radwan, Liang Lin, Pengxu Wei. "When Preference Labels Fall Short: Aligning Diffusion Models from Real Data." In International Conference on Machine Learning (**ICML**), 2026.

[2] Junrong Lian, **Weijian Deng**, Pengxu Wei, Yaqin Chen, Qixiang Ye, Liang Lin. "When Local Rules Create Global Order: Self-Organized Representation Learning for Latent Diffusion Models" In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2026.

[3] **Weijian Deng**, Dylan Campbell, Chunyi Sun, Jiahao Zhang, Shubham Kanitkar, Matthew Shaffer, and Stephen Gould. "*Pos3R: 6D Pose Estimation for Unseen Objects Made Easy.*" In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2025.

[4] Ziyi Dong, Chengxing Zhou, **Weijian Deng**, Pengxu Wei, Xiangyang Ji, and Liang Lin. *"Can We Achieve Efficient Diffusion without Self-Attention? Distilling Self-Attention into Convolutions."* In Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**), 2025.

[5] Chunyi Sun, Junlin Han, Runjia Li, **Weijian Deng**, Dylan Campbell, Stephen Gould. "*Unsupervised Decomposition of 3D Shapes into Expressive and Editable Extruded Profile Primitives.*" ACM Special Interest Group on Computer Graphics and Interactive Techniques (**SIGGRAPH**), 2025.

[6] Chunyi Sun, Junlin Han, **Weijian Deng**, Xinlong Wang, Zishan Qin, Stephen Gould. "*3D-GPT: Procedural 3D Modeling with Large Language Models.*" In International Conference on 3D Vision (**3DV**), 2025.

[7] **Weijian Deng**, Dylan Campbell, Chunyi Sun, Shubham Kanitkar, Matthew Shaffer, and Stephen Gould. "*Differentiable Neural Surface Refinement for Transparent Objects.*" In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024.

II. Predicting Model Generalization

[8] Weijie Tu, **Weijian Deng**, Dylan Campbell, Yu Yao, Jiyang Zheng, Tom Gedeon, Tongliang Liu. "*Ranked from Within: Ranking Large Multimodal Models for Visual Question Answering Without Labels.*" In International Conference on Machine Learning (**ICML**), 2025

[9] **Weijian Deng**, Yumin Suh, Stephen Gould, and Liang Zheng. "*Confidence and Dispersity Speak: Characterizing Prediction Matrix for Unsupervised Accuracy Estimation.*" In International Conference on Machine Learning (**ICML**), pp. 7658-7674. PMLR, 2023.

[10] Weijie Tu, **Weijian Deng**, Tom Gedeon, and Liang Zheng. "*A Bag-of-Prototypes Representation for Dataset-Level Applications.*" In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), pp. 2881-2892. 2023.

[11] **Weijian Deng**, and Liang Zheng. "*AutoEval: Are Labels Always Necessary for Classifier Accuracy Evaluation?*" IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), 2021.

[12] **Weijian Deng**, and Liang Zheng. "*Are Labels Always Necessary for Classifier Accuracy Evaluation?*" In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), pp. 15069-15078. 2021.

[13] **Weijian Deng**, Stephen Gould, and Liang Zheng. "*What Does Rotation Prediction Tell Us About Classifier Accuracy Under Varying Testing Environments?*" In International Conference on Machine Learning (**ICML**), pp. 2579-2589. PMLR, 2021.

III. Monitoring Model Reliability

[14] Weijie Tu, **Weijian Deng**, and Tom Gedeon. "*Toward a Holistic Evaluation of Robustness in CLIP Models.*" IEEE **TPAMI**, 2025 (*corresponding author*) (DOI: 10.1109/TPAMI.2025.3580234)

[15] Qing Zhao, **Weijian Deng**, Pengxu Wei, Ziyi Dong, Hannan Lu, Xiangyang Ji, Liang Lin. "*Delving into Cascaded Instability: A Lipschitz Continuity View on Image Restoration and Object Detection Synergy*" Advances in Neural Information Processing Systems (**NeurIPS**), 2025.

[16] Weijie Tu, **Weijian Deng**, Dylan Campbell, Stephen Gould, Tom Gedeon. "*An Empirical Study Into What Matters for Calibrating Vision-Language Models.*" In International Conference on Machine Learning (**ICML**), pp. 48791-48808. 2024.

[17] Weijie Tu, **Weijian Deng**, and Tom Gedeon. "*A Closer Look at the Robustness of Contrastive Language-Image Pre-training (CLIP).*" Advances in Neural Information Processing Systems (**NeurIPS**), 2023.

[18] Yuli Zou*, **Weijian Deng***, and Liang Zheng. "*Adaptive Calibrator Ensemble: Navigating Test Set Difficulty in Out-of-Distribution Scenarios.*" In Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**), pp. 19333-19342. 2023. (*equal contribution)

[19] **Weijian Deng**, Stephen Gould, and Liang Zheng. "*On the Strong Correlation Between Model Invariance and Generalization.*" Advances in Neural Information Processing Systems (**NeurIPS**), pp. 28052-28067. 2022.

[20] **Weijian Deng**, Liang Zheng, Qixiang Ye, Guoliang Kang, Yi Yang, and Jianbin Jiao. "*Image-Image Domain Adaptation With Preserved Self-Similarity and Domain-Dissimilarity for Person Re-Identification.*" In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), pp. 994-1003. 2018.

AWARDS

2025	DAAD AINeT Fellow in Explainable AI
2025	CVPR 2025 Outstanding Reviewer
2024	NeurIPS 2024 Top Reviewer
2024	Outstanding Area Chair, ACM MM
2023	NeurIPS 2023 Top Reviewer
2022	ICML Top 10% Reviewer
2020	ECCV 2020 Outstanding Reviewer
2019	The Third Place in Vehicle Re-identification track AI-City Challenge
2019-2023	Australian Government Research Training Program (AGRTP) Scholarship