Beier Zhu

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Abbreviations

NTU	Nanyang Technological University	MM	ACM International Conference on Multimedia
THU	Tsinghua University	ICCV	IEEE International Conference on Computer Vision
USTC	University of Science and Technology of China	AAAI	AAAI Conference on Artificial Intelligence
CVPR	Conference on Computer Vision and Pattern Recognition	TIP	IEEE Transactions on Image Processing
NeurIPS	Conference on Neural Information Processing Systems	TSG	IEEE Transactions on Smart Grid
ICLR	International Conference on Learning Representations	EE	Electrical Engineering

Research Interests

Robust and fair learning with provable guarantees, including imbalanced learning, group robustness, OOD generalization, and fast diffusion solvers.
Multimodal foundation models (VLMs, MLLMs, diffusion models) with a focus on robust adaptation, faithful reasoning, and controllable generation.

Working Experience

Research Scientist, NTU, Singapore — Mar 2025 – Present
Researcher, SenseTime, Beijing — Jul 2019 – Nov 2020

Education

Ph.D. in Computer Science, NTU, Singapore — Jan 2021 – Jan 2025
supervisor: Prof. Hanwang Zhang
M.S. in EE, THU, Beijing. — Sep 2016 – Jul 2019
B.E. in EE, THU, Beijing. — Sep 2012 – Jul 2016

Selected Publications

Listed in chronological order. *: equal contribution. †: corresponding author.

First-Authored Publications

ICLR 2026
1. Reducing class-wise performance disparity via margin regularization.
B. Zhu, *K. Zhao, J. Cui, Q. Sun, Y. Zhou, X. Yang, H. Zhang*

Preprint 2025
2. Parallel diffusion solver via residual dirichlet policy optimization.
R. Wang, Z. Li*,* ***B. Zhu****, L. Yuan, H. Zhang, X. Yang, X. Chang, C. Zhang*

NeurIPS 2025
3. Adaptive stochastic coefficients for accelerating diffusion sampling.
R. Wang,* ***B. Zhu****, J. Li, L. Yuan, C. Zhang*

ICCV 2025
4. Distilling parallel gradients for fast ODE solvers of diffusion models.
B. Zhu*, R. Wang*, T. Zhao, H. Zhang, C. Zhang*

CVPR 2025 **Highlight**
5. Project-probe-aggregate: efficient fine-tuning for group robustness.
B. Zhu, *J. Cui, H. Zhang, C. Zhang*

NeurIPS 2024
6. Robust fine-tuning of zero-shot models via variance reduction.
B. Zhu, *J. Cui, H. Zhang*

NeurIPS 2024 **Spotlight**
7. Enhancing zero-shot vision models by label-free prompt distribution learning and bias correcting.
X. Zhu,* ***B. Zhu****, Y. Tan, S. Wang, Y. Hao, H. Zhang*

MM 2024 **Oral**
8. Selective vision-Language subspace projection for few-shot CLIP.
X. Zhu,* ***B. Zhu****, Y. Tan, S. Wang, Y. Hao, H. Zhang*

NeurIPS 2023
9. Generalized logit adjustment: calibrating fine-tuned models by removing label bias in foundation models.
B. Zhu, *K. Tang, Q. Sun and H. Zhang*

ICCV 2023
10. Prompt-aligned gradient for prompt tuning.
B. Zhu, *Y. Niu, Y. Han, Y. Wu and H. Zhang*

AAAI 2023 **Oral**
11. Debiased fine-tuning for vision-language models by prompt regularization.
B. Zhu, *Y. Niu, S. Lee, M. Hur, H. Zhang*

AAAI 2022 **Oral**
12. Cross-domain empirical risk minimization for unbiased long-tailed classification.
B. Zhu, *Y. Niu, X. Hua and H. Zhang*

US patent 2022
13. Polygonal region detection.
Beier Zhu, *Rui Zhang*

TIP 2021
14. Structure-coherent deep feature learning for robust face alignment.
C. Lin,* ***B. Zhu****, Q. Wang, R. Liao, C. Qian, J. Lu and J. Zhou*

Corresponding-Authored Publications

TIP 2026
15. Hybrid granularity distribution estimation for few-shot learning: statistics transfer from categories and instances.
*S. Wang, T. Qi, X. Zhu, Y. Hao, †**B. Zhu**, H. Zhang, M. Wang*

ICLR 2026
16. Real-time motion-controllable autoregressive video diffusion.
*K. Zhao, J. Shi, †**B. Zhu**, J. Zhou, X. Shen, Y. Zhou, Q. Sun, H. Zhang*

ICLR 2026
17. Look carefully: adaptive visual reinforcements in multimodal large language models for hallucination mitigation.
*X. Zhu, K. Zhao, L. Yi, S. Wang, Z. Wang, †**B. Zhu**, H. Zhang, X. He*

AAAI 2026
18. DEPO: dual-efficiency preference optimization for LLM agents.
*S. Chen, M. Zhao, L. Xu, Y. Zhao, †**B. Zhu**, H. Zhang, S. Zhao, C. Lu*

MM 2025 **Oral**
19. Benchmarking and bridging emotion conflicts for multimodal emotion reasoning.
*Z. Han, †**B. Zhu**, Y. Xu, P. Song, X. Yang*

ICCV 2025
20. Unsupervised visual chain-of-thought reasoning via preference optimization.
*K. Zhao, †**B. Zhu**, Q. Sun, H. Zhang*

TSG 2019
21. Fault location for radial distribution network via topology and reclosure-generating traveling waves.
*S. Shi, †**B. Zhu**, A. Lei and X. Dong*

TSG 2018
22. Fault classification for transmission lines based on group sparse representation.
*S. Shi, †**B. Zhu**, S. Mirsaeidi and X. Dong*

Others

ICLR 2026
23. CoDi: subject-consistent and pose-diverse text-to-image generation.
*Z. Gao, **B. Zhu**, L. Yao, J, Yang, Y. Tai*

ICLR 2026
24. GuardAlign: robust safety alignment in multimodal large language models.
*X. Zhu, **B. Zhu**, J. Fang, S. Wang, Y. Zhang, X. Wang, X. He*

ICLR 2026
25. PMI: flow-based inversion correction via proximal operator.
*C. Wang, **B. Zhu**, C. Zhang*

ICLR 2026
26. Streaming drag-oriented interactive video manipulation: drag anything, anytime!
*J. Zhou, Y. Zhou, K. Zhao, Q. Xu, **B. Zhu**, R. Hong, H. Zhang*

AAAI 2026
27. Hierarchical semantic alignment for image clustering.
*X. Zhu, **B. Zhu**, Y. Li, J. Fang, S. Wang, K. Zhao, H. Zhang*

Preprint 2025
28. Generative distribution distillation.
*J. Cui, **B. Zhu**, Q. Xu, X. Xu, P. Chen, X. Qi, B. Yu, H. Zhang, R. Hong*

Preprint 2025
29. Generalized kullback-leibler divergence loss.
*J. Cui, **B. Zhu**, Q. Xu, Z. Tian, X. Qi, B. Yu, H. Zhang, R. Hong*

NeurIPS 2025 **Spotlight**
30. Enhancing CLIP robustness via cross-modality alignment.
*X. Zhu, **B. Zhu**, S. Wang, K. Zhao, H. Zhang*

ICCV 2025
31. Dynamic multimodal prototype learning in vision-language models.
*X. Zhu, S. Wang, **B. Zhu**, M. Li, Y. Li, J. Fang, Z. Wang, D. Wang, H. Zhang*

CVPR 2025
32. Devils in middle layers of large vision-language models: interpreting, detecting and mitigating object hallucinations via attention lens.
*Z. Jiang, J. Chen, **B. Zhu**, T. Luo, Y. Shen, X. Yang*

CVPR 2025
33. Stylestudio: text-driven style transfer with selective control of style elements.
*M. Lei, X. Song, **B. Zhu**, H. Wang, C. Zhang*

CVPR 2024
34. Classes are not equal: an empirical study on image recognition fairness.
*J. Cui, **B. Zhu**, X. Wen, X. Qi, B. Yu, H. Zhang*

AAAI 2023 **Oral**
35. Leveraging modality-specific representations for audio-visual speech recognition via reinforcement learning.
*C. Chen, Y. Hu, Q. Zhang, H. Zou, **B. Zhu**, E. Chng*

Mentoring and Supervision

Xingyu Zhu, Ph.D at USTC
Supervisor for papers accepted at MM 2024, NeurIPS 2024/2025, ICCV 2025, AAAI 2026, and ICLR 2026.

Kesen Zhao, Ph.D. at NTU
Supervisor for paper accepted at ICCV 2025 and ICLR 2026.

Ruoyu Wang, Ph.D. at Westlake University
Supervisor for papers accepted at ICCV 2025 and NeurIPS 2025.

Zhiyuan Han, Ph.D. at USTC

Supervisor for paper accepted at MM 2025.

Sirui Chen, Ph.D. at Tongji University
Supervisor for paper accepted at AAAI 2026.

Zhanxin Gao, Ph.D. at Nanjing University
Supervisor for paper accepted at ICLR 2026.

Service

Journal Reviewer: TPAMI, TIP, TMM, TCSVT, TCE, IJCV, Information Fusion

Conference Reviewer: CVPR, ICCV, AAAI, MM, UAI, AISTATS, NeurIPS (**Top Reviewer 2025**), ICLR, ICML, ACL.

Awards

Honorable Mention, Nanyang Speech Forum, Singapore.	2023
AISG PhD Fellowship, National Research Foundation, Singapore.	2021
First Price Scholarship, THU, China.	2018
Scholarship, China Scholarship Council, China.	2014

Internship

Research Intern, SenseTime, Beijing	Mar 2018 – Oct 2018
Research Intern, Tencent YouTu Lab, Shanghai	Jul 2018 – Sep 2018
Research Intern, MeiTuan, Beijing	Aug 2017 – Dec 2017

[*CV compiled on 2026-02-02*]