Beier Zhu

beier.zhu@ntu.edu.sg GoogleScholar beierzhu.github.io

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

Theory **Robust and fair learning** with provable guarantees, including imbalanced learning, group robustness, OOD generalization, and fast diffusion solvers.
Application **Multimodal foundation models** (VLMs, MLLMs, diffusion models) with a focus on robust adaptation, reasoning faithfulness, 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. Theory Work Application Work

First-Authored Publications

1. Reducing class-wise performance disparity via margin regularization.
   B. Zhu, *K. Zhao, J. Cui, Q. Sun, Y. Zhou, X. Yang, H. Zhang*
   ICLR 2026. Robustness
2. Adaptive stochastic coefficients for accelerating diffusion sampling.
   R. Wang, **B. Zhu***, J. Li, L. Yuan, C. Zhang*
   NeurIPS 2025. Diffusion Solver
3. Distilling parallel gradients for fast ODE solvers of diffusion models.
   B. Zhu, *R. Wang*, T. Zhao, H. Zhang, C. Zhang*
   ICCV 2025. Diffusion Generation
4. Project-probe-aggregate: efficient fine-tuning for group robustness.
   B. Zhu, *J. Cui, H. Zhang, C. Zhang*
   Highlight, **CVPR** 2025. Group Robustness
5. Robust fine-tuning of zero-shot models via variance reduction.
   B. Zhu, *J. Cui, H. Zhang*
   NeurIPS 2024. OOD Generation
6. 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*
   Spotlight, **NeurIPS** 2024. Imbalanced Learning
7. Selective vision-Language subspace projection for few-shot CLIP.
   X. Zhu, **B. Zhu***, Y. Tan, S. Wang, Y. Hao, H. Zhang*
   Oral, **MM** 2024. VLM Adaptation
8. Generalized logit adjustment: calibrating fine-tuned models by removing label bias in foundation models.
   B. Zhu, *K. Tang, Q. Sun and H. Zhang*
   NeurIPS 2023. Imbalanced Learning
9. Prompt-aligned gradient for prompt tuning.
   B. Zhu, *Y. Niu, Y. Han, Y. Wu and H. Zhang*
   ICCV 2023. VLM Adaptation
10. Debiased fine-tuning for vision-language models by prompt regularization.
    B. Zhu, *Y. Niu, S. Lee, M. Hur, H. Zhang*
    Oral, **AAAI** 2023. VLM Adaptation
11. Cross-domain empirical risk minimization for unbiased long-tailed classification.
    B. Zhu, *Y. Niu, X. Hua and H. Zhang*
    Oral, **AAAI** 2022. Imbalanced Learning

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

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

Corresponding-Authored Publications

14. 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*
TIP 2026. Few-Shot Learning

15. 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. Video Generation

16. 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*
ICLR 2026. Hallucination Mitigation

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

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

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

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

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

Others

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

23. 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. MLLM Safety

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

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

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

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

28. 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*
ICCV 2025. VLM Adaptation

29. 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. Hallucination Mitigation

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

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

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

Mentoring and Supervision

Xingyu Zhu, P.h.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.

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 2026-01-28*]