Zhengyuan Yang

□ (585) 435-3638 | Zhengyuan.yang13@gmail.com | Azhengyuan.info | Scholar

Research Interests ____

My research centers on multimodal foundation models and the agent systems they empower. Most recently, I have been building large-scale multimodal reasoning and agentic models. Earlier, I led the diffusion distillation work behind DALL-E 3, and conducted research on multimodal understanding and generation.

Education _____

University of Rochester

Rochester, New York

2016 - 2021

PH.D. IN COMPUTER SCIENCE

ADVISOR: PROF. JIEBO LUO

• Thesis: Visual Grounding: Building Cross-Modal Visual-Text Alignment (ACM SIGMM Outstanding Ph.D. Thesis)

University of Science and Technology of China B.E. IN ELECTRONIC ENGINEERING AND INFORMATION SCIENCE

Hefei, China

2012 - 2016

Experience _

Redmond, WA Microsoft

PRINCIPAL RESEARCHER Sept. 2024 - Current **SENIOR RESEARCHER** Sept. 2022 - Sept. 2024 RESEARCHER June 2021 - Sept. 2022

- Training large-scale multimodal reasoning and agentic models.
- Lead DALL-E 3 diffusion distillation.
- Research on scalable multimodal understanding and generation.

Bellevue, WA Microsoft May 2020 to Aug 2020

RESEARCH INTERN SUPERVISOR: DR. YIJUAN LU, DR. JIANFENG WANG, DR. XI YIN

Bellevue, WA Tencent AI Lab at Bellevue Jan 2019 to Apr 2019 RESEARCH INTERN SUPERVISOR: DR. BOQING GONG, DR. LIWEI WANG

Venice, CA **SnapChat Research**

May 2018 to Aug 2018 RESEARCH INTERN SUPERVISOR: DR. YUNCHENG LI, DR. LINJIE YANG, DR. NING ZHANG

Selected Publications _____

ICML 2025a

	Cha Zhang, "ReFocus: Visual Editing as a Chain of Thought for Structured Image Understanding," The 42nd
	International Conference on Machine Learning (ICML), Vancouver, Canada, July 2025.
ICML 2025b	Yunzhuo Hao, Jiawei Gu, Huichen Will Wang, Linjie Li, Zhengyuan Yang , Lijuan Wang, Yu Cheng, "Can MLLMs
	Reason/Think in Multimodality? EMMA: An Enhanced MultiModal ReAsoning Benchmark," The 42nd
	International Conference on Machine Learning (ICML), Vancouver, July 2025. Spotlight presentation.
CVPR 2025a	Kevin Qinghong Lin, Linjie Li, Difei Gao, Zhengyuan Yang , Shiwei Wu, Zechen Bai, Weixian Lei, Lijuan Wang,
	Mike Zheng Shou, "ShowUI: One Vision-Language-Action Model for GUI Visual Agent," IEEE Conference on
	Computer Vision and Pattern Recognition (CVPR), Nashville, TN, June 2025.

CVPR 2025b Qin Liu, Jianfeng Wang, Zhengyuan Yang, Linjie Li, Kevin Lin, Marc Niethammer, Lijuan Wang, "LiVOS: Light

Video Object Segmentation with Gated Linear Matching," IEEE Conference on Computer Vision and Pattern

Xingyu Fu, Mingian Liu, Zhengyuan Yang, John Corring, Yijuan Lu, Jianwei Yang, Dan Roth, Dinei Florencio,

Recognition (CVPR), Nashville, TN, June 2025.

NAACL 2025 Chenglei Si, Yanzhe Zhang, Ryan Li, Zhengyuan Yang, Ruibo Liu, Diyi Yang, "Design2Code: Benchmarking

Multimodal Code Generation for Automated Front-End Engineering," The Nations of the Americas Chapter of

the Association for Computational Linguistics (NAACL), New Mexico, April 2025. Oral presentation.

ICLR 2025a Yining Hong, Beide Liu, Maxine Wu, Yuanhao Zhai, Kai-Wei Chang, Linjie Li, Kevin Lin, Chung-Ching Lin, Jianfeng Wang, **Zhengyuan Yang***, Yingnian Wu*, Lijuan Wang*, "SlowFast-VGen: Slow-Fast Learning for Action-Driven Long Video Generation," The Thirteenth International Conference on Learning Representations (ICLR), Singapore, April 2025. Spotlight presentation. **ICLR 2025b** Zichen Miao, **Zhengyuan Yang**, Kevin Lin, Ze Wang, Zicheng Liu, Lijuan Wang, Qiang Qiu, "Tuning Timestep-Distilled Diffusion Model Using Pairwise Sample Optimization," The Thirteenth International Conference on Learning Representations (ICLR), Singapore, April 2025. ICLR 2025c Yuyang Zhao, Chung-Ching Lin, Kevin Lin, Zhiwen Yan, Linjie Li, **Zhengyuan Yang**, Jianfeng Wang, Gim Hee Lee, Lijuan Wang, "GenXD: Generating Any 3D and 4D Scenes," The Thirteenth International Conference on Learning Representations (ICLR), Singapore, April 2025. **ICLR 2025d** Xuehai He, Weixi Feng, Kaizhi Zheng, Yujie Lu, Wanrong Zhu, Jiachen Li, Yue Fan, Jianfeng Wang, Linjie Li, Zhengyuan Yang, Kevin Lin, William Yang Wang, Lijuan Wang, Xin Eric Wang, Zhengyuan Yang, Jianfeng Wang, Gim Hee Lee, Lijuan Wang, "MMWorld: Towards Multi-discipline Multi-faceted World Model Evaluation in Videos," The Thirteenth International Conference on Learning Representations (ICLR), Singapore, April 2025. **ICLR 2025e** Kaizhi Zheng, Xiaotong Chen, Xuehai He, Jing Gu, Linjie Li, Zhengyuan Yang, Kevin Lin, Jianfeng Wang, Lijuan Wang, Xin Eric Wang, "EditRoom: LLM-parameterized Graph Diffusion for Composable 3D Room Layout Editing," The Thirteenth International Conference on Learning Representations (ICLR), Singapore, April 2025. NeurIPS 2024a Yuanhao Zhai, Kevin Lin, Zhengyuan Yang, Linjie Li, Jianfeng Wang, Chung-Ching Lin, David Doermann, Junsong Yuan, Lijuan Wang, "Motion Consistency Model: Accelerating Video Diffusion with Disentangled Motion-Appearance Distillation," The 38th Conference on Neural Information Processing Systems (NeurIPS), Vancouver, BC, December 2024. NeurIPS 2024b Xueyan Zou, Linjie Li, Jianfeng Wang, Jianwei Yang, Mingyu Ding, Junyi Wei, **Zhengyuan Yang**, Feng Li, Hao Zhang, Shilong Liu, Arul Aravinthan, Yong Jae Lee, Lijuan Wang, "Interfacing Foundation Models' Embeddings," The 38th Conference on Neural Information Processing Systems (NeurIPS), Vancouver, BC, December 2024. NeurIPS 2024c Kevin Qinghong Lin, Linjie Li, Difei Gao, Qinchen WU, Mingyi Yan, Zhengyuan Yang, Lijuan Wang, Mike Zheng Shou, "VideoGUI: A Benchmark for GUI Automation from Instructional Videos," The 38th Conference on Neural Information Processing Systems Datasets and Benchmarks (NeurIPS), Vancouver, BC, December 2024. Spotlight presentation. **COLM 2024** An Yan, Zhengyuan Yang, Junda Wu, Wanrong Zhu, Jianwei Yang, Linjie Li, Kevin Lin, Jianfeng Wang, Julian McAuley, Jianfeng Gao, Lijuan Wang, "List Items One by One: A New Data Source and Learning Paradigm for Multimodal LLMs," The 1st Conference on Language Modeling (COLM), Philadelphia, PA, October 2024. **ACMMM 2024** Jie An, **Zhengyuan Yang**, Linjie Li, Jianfeng Wang, Kevin Lin, Zicheng Liu, Lijuan Wang, Jiebo Luo, "Openleaf: Open-domain interleaved image-text generation and evaluation," ACM Multimedia Conference (MM), Brave New Ideas track, Melbourne, Australia, October 2024. Oral presentation. ECCV 2024a Zhengyuan Yang, Jianfeng Wang, Linjie Li, Kevin Lin, Chung-Ching Lin, Zicheng Liu, Lijuan Wang, "Idea2Img: Iterative Self-Refinement with GPT-4V(ision) for Automatic Image Design and Generation," The 18th European Conference on Computer Vision (ECCV), Milano, Italy, Sept 2024. **ECCV 2024b** Jialian Wu, Jianfeng Wang, **Zhengyuan Yang**, Zhe Gan, Zicheng Liu, Junsong Yuan, Lijuan Wang, "GRiT: A Generative Region-to-text Transformer for Object Understanding," The 18th European Conference on Computer Vision (ECCV), Milano, Italy, Sept 2024. ECCV 2024c Yuanhao Zhai, Kevin Lin, Linjie Li, Chung-Ching Lin, Jianfeng Wang, Zhengyuan Yang, David Doermann, Junsong Yuan, Zicheng Liu, Lijuan Wang, "IDOL: Unified Dual-Modal Latent Diffusion for Human-Centric Joint Video-Depth Generation," The 18th European Conference on Computer Vision (ECCV), Milano, Italy, Sept **ICML 2024a** Weihao Yu*, Zhengyuan Yang*, Linjie Li, Jianfeng Wang, Kevin Lin, Zicheng Liu, Xinchao Wang, Lijuan Wang, "MM-Vet: Evaluating Large Multimodal Models for Integrated Capabilities," The Forty-first International

Conference on Machine Learning (ICML), Vienna, Austria, July 2024.

ICML 2024b Zecheng Tang, Chenfei Wu, Zekai Zhang, Mingheng Ni, Shengming Yin, Yu Liu, Zhengyuan Yang, Lijuan Wang, Zicheng Liu, Juntao Li, Nan Duan, "StrokeNUWA: Tokenizing Strokes for Vector Graphic Synthesis," The Forty-first International Conference on Machine Learning (ICML), Vienna, Austria, July 2024. **IJCAI 2024** Jie An, **Zhengyuan Yang**, Jianfeng Wang, Linjie Li, Zicheng Liu, Lijuan Wang, Jiebo Luo, "Bring Metric Functions into Diffusion Models," The 32nd International Joint Conference on Artificial Intelligence (IJCAI), Jeju, August 2024. **CVPR 2024a** Chaoyi Zhang, Kevin Lin, Zhengyuan Yang, Jianfeng Wang, Linjie Li, Chung-Ching Lin, Zicheng Liu, Lijuan Wang, "MM-Narrator: Narrating Long-form Videos with Multimodal In-Context Learning," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Seattle, WA, June 2024. Highlight presentation. **CVPR 2024b** Tan Wang, Linjie Li, Kevin Lin, Yuanhao Zhai, Chung-Ching Lin, **Zhengyuan Yang**, Hanwang Zhang, Zicheng Liu, Lijuan Wang, "DisCo: Disentangled Control for Realistic Human Dance Generation," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Seattle, WA, June 2024. **CVPR 2024c** Zichen Miao, Jiang Wang, Ze Wang, **Zhengyuan Yang**, Lijuan Wang, Qiang Qiu, Zicheng Liu, "Training Diffusion Models Towards Diverse Image Generation with Reinforcement Learning," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Seattle, WA, June 2024. **CVPR 2024d** Jielin Qiu, Jiacheng Zhu, William Han, Aditesh Kumar, Karthik Mittal, Claire Jin, **Zhengyuan Yang**, Linjie Li, Jianfeng Wang, Ding Zhao, Bo Li, Lijuan Wang, "MMSum: A Dataset for Multimodal Summarization and Thumbnail Generation of Videos," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Seattle, WA, June 2024. Highlight presentation. **Book 2023** Chunyuan Li*, Zhe Gan*, Zhengyuan Yang*, Jianwei Yang*, Linjie Li*, Lijuan Wang, Jianfeng Gao, "Multimodal Foundation Models: From Specialists to General-Purpose Assistants," Foundations and Trends in Computer Graphics and Vision, 2023. Arxiv 2023a Zhengyuan Yang*, Linjie Li*, Kevin Lin*, Jianfeng Wang*, Chung-Ching Lin*, Zicheng Liu, Lijuan Wang*, "The Dawn of LMMs: Preliminary Explorations with GPT-4V(ision)." (Exploratory work cataloguing use of GPT-4V). Arxiv 2023b Zhengyuan Yang, Linjie Li, Jianfeng Wang, Kevin Lin, Ehsan Azarnasab, Faisal Ahmed, Zicheng Liu, Ce Liu, Michael Zeng, Lijuan Wang, "MM-REACT: Prompting ChatGPT for Multimodal Reasoning and Action." ICCV 2023a Yushi Hu, Hang Hua, **Zhengyuan Yang**, Weijia Shi, Noah A. Smith, Jiebo Luo, "PromptCap: Prompt-Guided Task-Aware Image Captioning," IEEE International Conference on Computer Vision (ICCV), Paris, France, October 2023. ICCV 2023b Tan Wang, Kevin Lin, Linjie Li, Chung-Ching Lin, **Zhengyuan Yang**, Hanwang Zhang, Zicheng Liu, Lijuan Wang, "Equivariant Similarity for Vision-Language Foundation Models," IEEE International Conference on Computer Vision (ICCV), Paris, France, October 2023. Oral presentation. **ACL 2023** Shengming Yin, Chenfei Wu, Huan Yang, Jianfeng Wang, Xiaodong Wang, Minheng Ni, Zhengyuan Yang, Linjie Li, Shuguang Liu, Fan Yang, Jianlong Fu, Gong Ming, Lijuan Wang, Zicheng Liu, Houqiang Li, Nan Duan, "NUWA-XL: Diffusion over Diffusion for eXtremely Long Video Generation." Annual Meeting of the Association for Computational Linguistics (ACL), Toronto, Canada, July 2023, Oral presentation. **IJCAI 2023** Xiaodong Wang, Chenfei Wu, Shengming Yin, Minheng Ni, Jianfeng Wang, Linjie Li, Zhengyuan Yang, Fan Yang, Lijuan Wang, Zicheng Liu, Yuejian Fang, Nan Duan, "Learning 3D Photography Videos via Self-supervised Diffusion on Single Images." The 32nd International Joint Conference on Artificial Intelligence (IJCAI), Macao, August 2023. **CVPR 2023 Zhengyuan Yang**, Jianfeng Wang, Zhe Gan, Linjie Li, Kevin Lin, Chenfei Wu, Nan Duan, Zicheng Liu, Ce Liu, Michael Zeng, Lijuan Wang, "ReCo: Region-Controlled Text-to-Image Generation," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Vancouver, BC, June 2023. **ICLR 2023** Chenglei Si, Zhe Gan, Zhengyuan Yang, Shuohang Wang, Jianfeng Wang, Jordan Boyd-Graber, Lijuan Wang, Prompting GPT-3 To Be Reliable," The Eleventh International Conference on Learning Representations." (ICLR), Kigali, Rwanda, May 2023. **ECCV 2022** Zhengyuan Yang, Zhe Gan, Jianfeng Wang, Xiaowei Hu, Faisal Ahmed, Zicheng Liu, Yumao Lu, Lijuan Wang, "UniTAB: Unifying Text and Box Outputs for Grounded Vision-Language Modeling," European Conference on Computer Vision (ECCV), Tel Aviv, Israel, October 2022. **Oral presentation (2.7%)**.

TPAMI 2023 Jiajun Deng, Zhengyuan Yang, Daqing Liu, Tianlang Chen, Wengang Zhou, Yanyong Zhang, Houqiang Li, Wanli Ouyang, "TransVG++: End-to-End Visual Grounding with Language Conditioned Vision Transformer," IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2023. **TMLR 2022** Jianfeng Wang, **Zhengyuan Yang**, Xiaowei Hu, Linjie Li, Kevin Lin, Zhe Gan, Zicheng Liu, Ce Liu, Lijuan Wang, GIT: A Generative Image-to-text Transformer for Vision and Language," Transactions on Machine Learning" Research (TMLR), 2022. **CVPR 2022** Xiaowei Hu, Zhe Gan, Jianfeng Wang, Zhengyuan Yang, Zicheng Liu, Yumao Lu and Lijuan Wang, "Scaling Up Vision-Language Pre-training for Image Captioning," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), New Orleans, June 2022. Arxiv 2021 Jianfeng Wang, Xiaowei Hu, Zhe Gan, **Zhengyuan Yang**, Xiyang Dai, Zicheng Liu, Yumao Lu and Lijuan Wang, "UFO: A UniFied TransfOrmer for Vision-Language Representation Learning." **AAAI 2022 Zhengyuan Yang**, Zhe Gan, Jianfeng Wang, Xiaowei Hu, Yumao Lu, Zicheng Liu, Lijuan Wang, "An Empirical Study of GPT-3 for Few-Shot Knowledge-Based VQA," The 36th AAAI Conference on Artificial Intelligence (AAAI), Vancouver, BC, February 2022. Oral presentation (4.2%). **ICPR 2022** Zhengyuan Yang, Jingen Liu, Jing Huang, Xiaodong He, Tao Mei, Chenliang Xu, Jiebo Luo, "Cross-modal Contrastive Distillation for Instructional Activity Anticipation," International Conference on Pattern Recognition (ICPR), Montreal, Quebec, Canada, August 2022. **ICCV 2021a** Zhengyuan Yang, Songyang Zhang, Liwei Wang, Jiebo Luo, "SAT: 2D Semantics Assisted Training for 3D Visual Grounding," IEEE International Conference on Computer Vision (ICCV), Online, 2021. Oral presentation (3.4%). ICCV 2021b Jiajun Deng, **Zhengyuan Yang**, Tianlang Chen, Wengang Zhou, Houqiang Li, "TransVG: End-to-End Visual Grounding with Transformers," IEEE International Conference on Computer Vision (ICCV), Online, 2021. **CVPR 2021a** Zhengyuan Yang, Yijuan Lu, Jianfeng Wang, Xi Yin, Dinei Florencio, Lijuan Wang, Cha Zhang, Lei Zhang, Jiebo Luo, "TAP: Text-Aware Pre-training for Text-VQA and Text-Caption," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Online, June 2021. Oral presentation (4.0%). Liwei Wang, Jing Huang, Yin Li, Kun Xu, **Zhengyuan Yang**, Dong Yu, "Improving Weakly Supervised Visual **CVPR 2021b** Grounding by Contrastive Knowledge Distillation," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Online, June 2021. **ECCV 2020 Zhengyuan Yang**, Tianlang Chen, Liwei Wang, Jiebo Luo, "Improving One-stage Visual Grounding by Recursive Sub-query Construction," European Conference on Computer Vision (ECCV), Online, August 2020. **ACL 2020** Yongjing Yin, Fandong Meng, Jinsong Su, Chulun Zhou, Zhengyuan Yang, Jie Zhou, Jiebo Luo, "A Novel Graph-based Multi-modal Fusion Encoder for Neural Machine Translation," Annual Meeting of the Association for Computational Linguistics (ACL), Online, July 2020. **T-CSVT 2020** Zhengyuan Yang, Tushar Kumar, Tianlang Chen, Jingsong Su, Jiebo Luo, "Grounding-Tracking-Integration," IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT). **ACMMM 2020** Huan Lin, Fandong Meng, Jinsong Su, Yongjing Yin, Zhengyuan Yang, Yubin Ge, Jie Zhou, Jiebo Luo, "Dynamic Context-guided Capsule Network for Multimodal Machine Translation," ACM Multimedia Conference, Seattle, WA, October 2020 **Zhengyuan Yang**, Boqing Gong, Liwei Wang, Wenbing Huang, Dong Yu, Jiebo Luo, "A Fast and Accurate **ICCV 2019** One-Stage Approach to Visual Grounding," IEEE International Conference on Computer Vision (ICCV), Seoul, South Korea, 2019. Oral presentation (4.3%). **CVPR 2019** Mengshi Qi, Weijian Li, Zhengyuan Yang, Yunhong Wang, Jiebo Luo, "Attentive Relational Networks for Mapping Images to Scene Graphs," IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Long Beach, USA, 2019. **T-CSVT 2018** Zhengyuan Yang, Yuncheng Li, Jianchao Yang, Jiebo Luo, "Action Recognition with Spatio-Temporal Visual Attention on Skeleton Image Sequences," IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT). ICPR 2018a Zhengyuan Yang, Yixuan Zhang, Jerry Yu, Junjie Cai, Jiebo Luo, "End-to-end Multi-Modal Multi-Task Vehicle Control for Self-Driving Cars with Visual Perceptions," International Conference on Pattern Recognition (ICPR), Beijing, China, 2018. Best Industry Related Paper Award (BIRPA) (1/1258).

Invited Talk – Multimodal Age	ents	Niagara Falls, Canado
• ICME 2024 Workshop on Visual-La	anguage Alignment in Text-Guided Multi-Modal Generation	2024
Tutorial Talk – Recent Advanc	es in Image Generative Foundation Models	Seattle, We
CVPR 2024 Tutorial on Recent Adv	vances in Vision Foundation Models	2024
Invited Talk - Multimodal Age CUHK Multi-Modal Symposium	ents: from Text to Multimodal Reasoning and Action	Hong Kong, China 2024
Tutorial Talk – Alignments in CVPR 2023 Tutorial on Recent Adv	Vancouver, BC 2023	
Invited Talk - Towards Cross- ACM MM Asia 2022 Workshop on	Tokyo, Japan 2022 New Orleans, LA 2022 Online 2021 Rochester, NY 2021	
Tutorial Talk – Unified Image- CVPR 2022 Tutorial on Recent Adv		
Invited Talk - SAT: 2D Semant • CVPR Workshop 2021 on Language		
Guest Lecture – Vision-and-la		
CS440 Data Mining, University of		
Guest Lecture – CNN and FeatCS440 Data Mining, University of		Rochester, NY 2020
Selected Awards _		
ACM SIGMM Award for Outst	2022	
ECCV 2022 Outstanding Revi	2022	
Winner of CVPR 2021 TextCap	2021 2021	
Winner of CVPR 2021 ReferIt: CVPR 2021 Outstanding Review	2021	
Twitch Research Fellowship	2020	
Best Industry Related Paper	2018	
Services		
Exhibits and Demos Chair:	IEEE International Conference on Multimedia and Expo (ICME)	2024
Area Chair:	EMNLP, ACMMM, NAACL	2024
	AAAI Conference on Artificial Intelligence (AAAI)	2023-2025

emor Program Committee: Avai Comercine on Artificial Intelligence (Avai)

Associate Editor: IEEE Transactions on Circuits and Systems for Video Technology (TCSVT) 2022-2026

Guest Editor: IEEE TMM SI on "Large Multimodal Models for Dynamic Visual Scene Understanding" 2024

IEEE TCSVT SI on "AI-Generated Content for Multimedia" 2023

Conference Reviewer: CVPR, ICCV, ECCV, NeurIPS, ICLR, ICML, ACL, EMNLP, ACMMM, AAAI, ACCV, WACV, ICME, ICIP.

Journal Reviewer: TPAMI, IJCV, TIP, TMM, TCybernetics, TCSVT, Pattern Recognition, Neurocomputing, TBioCAS, Access.

Selected Patents _

[&]quot;Weakly supervised semantic parsing", US Patent Number: 11,182,603 (Granted, 11/2021).