Zheng-yuan Yang

Researcher, Microsoft, Bellevue, WA

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Research Summary

My research interests involve the intersection of computer vision and natural language processing, such as vision+language and multimodal learning.

Education

University of Rochester   *Rochester, New York*
PH.D. IN COMPUTER SCIENCE   ADVISOR: PROF. JIEBO LUO   *2016 - 2021*
- Thesis: Visual Grounding: Building Cross-Modal Visual-Text Alignment
- Thesis Committee: Jiebo Luo (advisor), Dan Gildea, Chenliang Xu, Ehsan Hoque, Zhiyao Duan

University of Science and Technology of China   *Hefei, China*
B.E. IN ELECTRONIC ENGINEERING AND INFORMATION SCIENCE   *2012 - 2016*

Professional Experience

Microsoft   *Bellevue, WA*
RESEARCHER   *June 2021 - Current*
- Research on vision+language.

Microsoft   *Bellevue, WA*
RESEARCH INTERN   SUPERVISOR: DR. YIJUAN LU, DR. JIANFENG WANG, DR. XI YIN   *May 2020 to Aug 2020*
- TextVQA and TextCaption (CVPR 2021a).

Tencent AI Lab at Bellevue   *Bellevue, WA*
RESEARCH INTERN   SUPERVISOR: DR. BOQING GONG, DR. LIWEI WANG   *Jan 2019 to Apr 2019*
- Real time image-text grounding (ICCV 2019).

SnapChat Research   *Venice, CA*
RESEARCH INTERN   SUPERVISOR: DR. YUNCHENG LI, DR. LINJIE YANG, DR. NING ZHANG   *May 2018 to Aug 2018*
- Weakly-supervised human part parsing (ICPR 2020a).

SAIC USA   *San Jose, CA*
RESEARCH INTERN   SUPERVISOR: DR. JERRY YU   *May 2017 to Aug 2017*
- Camera-based E2E self-driving (ICPR 2018).
- Best Industry Related Paper Award (BIRPA) in ICPR 2018 (1/1258).

Selected Publications

Arxiv 2021a	**Zhengyuan Yang**, Zhe Gan, Jianfeng Wang, Xiaowei Hu, Faisal Ahmed, Zicheng Liu, Yumao Lu, Lijuan Wang, "Crossing the Format Boundary of Text and Boxes: Towards Unified Vision-Language Modeling," Under Review.
Arxiv 2021b	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," Under Review.
Arxiv 2021c	Xiaowei Hu, Zhe Gan, Jianfeng Wang, **Zhengyuan Yang**, Zicheng Liu, Yumao Lu and Lijuan Wang, "Scaling Up Vision-Language Pre-training for Image Captioning," Under Review.
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.
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%)**.
CVPR 2021b	Liwei Wang, Jing Huang, Yin Li, Kun Xu, **Zhengyuan Yang**, Dong Yu, "Improving Weakly Supervised Visual 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
ICCV 2019	**Zhengyuan Yang**, Boqing Gong, Liwei Wang, Wenbing Huang, Dong Yu, Jiebo Luo, "A Fast and Accurate One-Stage Approach to Visual Grounding," IEEE International Conference on Computer Vision (ICCV), Seoul, South Korea, 2019. **Oral presentation (4.3%)**.
ICPR 2020a	**Zhengyuan Yang**, Yuncheng Li, Linjie Yang, Ning Zhang, Jiebo Luo, "Weakly Supervised Body Part Parsing with Pose based Part Priors," International Conference on Pattern Recognition (ICPR), Millan, Italy, January, 2020.
ICPR 2020b	**Zhengyuan Yang**, Amanda Kay, Yuncheng Li, Wendi Cross, Jiebo Luo, "Pose-based Body Language Recognition for Emotion and Psychiatric Symptom Interpretation," International Conference on Pattern Recognition (ICPR), Millan, Italy, January, 2020.
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.
ICME 2019	**Zhengyuan Yang**, Yixuan Zhang, Jiebo Luo, "Human-Centered Emotion Recognition in Animated GIFs with Facial Landmarks," IEEE International Conference on Multimedia and Expo (ICME), Shanghai, China, 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)**.
ICPR 2018b	**Zhengyuan Yang**, Yuncheng Li, Jianchao Yang, Jiebo Luo, "Action Recognition with Visual Attention on Skeleton Images," International Conference on Pattern Recognition (ICPR), Beijing, China, 2018.

Services

Associate Editor:	IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)	2022-2024
Conference Reviewer:	CVPR, ICCV, NeurIPS, ICLR, ICML, ACL, EMNLP, AAAI, ACCV, WACV, ICME, ICIP.	
Journal Reviewer:	IJCV, TIP, TMM, TCybernetics, TCSVT, Pattern Recognition, Neurocomputing, TBioCAS, IEEE Access.	

Selected Awards

Winner of CVPR 2021 TextCaps Challenge	2021
Winner of CVPR 2021 ReferIt3D Challenge	2021

CVPR 2021 Outstanding Reviewer   2021
Twitch Research Fellowship   2020
Best Industry Related Paper Award (BIRPA) in ICPR 2018, *(1/1258)*   2018
National Scholarship, *Top 3%*   2014

Selected Patents

"Weakly supervised semantic parsing", *US Patent Number*: 11,182,603 (Granted, 11/2021).