

## Wang Zhu

600 Central Ave Apt 337  
Riverside, CA, US  
92507

wangzhu@usc.edu  
<https://billzhu.me>  
+1 (360) 600 7466

EDUCATION	University of Southern California, Los Angeles, US <i>Doctor of Philosophy, Computer Science</i>	Jan 2021 - present
	Simon Fraser University, Vancouver, Canada <i>Bachelor of Applied Science, Computer Science</i>	Sep 2017 - Aug 2020
	Zhejiang University, Hangzhou, China <i>Bachelor of Engineering, Computer Science</i>	Sep 2015 - Aug 2020
RESEARCH INTEREST	Natural Language Processing Vision-Language Grounding Machine Learning	
SELECTED PUBLICATIONS	Wang Zhu, Ishika Singh*, Yuan Huan*, Robin Jia, Jesse Thomason. <b>Noisy Instructions Are All You Need for VLN Pretraining.</b> <i>In submission.</i>	
	Wang Zhu, Jesse Thomason, Robin Jia. <b>Generalization Differences between End-to-End and Neuro-Symbolic Vision-Language Reasoning Systems.</b> <i>Findings of EMNLP, 2022.</i>	
	Jacob Krantz*, Shurjo Banerjee*, Wang Zhu, Jason J Corso, Peter Anderson, Stefan Lee, Jesse Thomason. <b>Iterative Vision-and-Language Navigation.</b> <i>arXiv preprint: 2210.03087, 2022.</i>	
	Yejia Liu*, Wang Zhu*, Shaolei Ren. <b>Navigating Memory Construction by Global Pseudo-Task Simulation for Continual Learning.</b> <i>Conference on Neural Information Processing Systems (NeurIPS), 2022.</i>	
	Wang Zhu, Peter Shaw, Tal Linzen, Fei Sha. <b>Learning to Generalize Compositionally by Transferring Across Semantic Parsing Tasks.</b> <i>arXiv preprint: 2111.05013, 2021.</i>	
	Wang Zhu*, Hexiang Hu*, Jiacheng Chen, Zhiwei Deng, Vihan Jain, Eugene Ie, Fei Sha. <b>BabyWalk: Going Farther in Vision-and-Language Navigation by Taking Baby Steps.</b> <i>Annual Conference of the Association for Computational Linguistics (ACL), 2020</i>	
	Guiliang Liu, Oliver Schulte, Wang Zhu, Qingcan Li. <b>Toward Interpretable Deep Reinforcement Learning with Linear Model U-Trees.</b> <i>European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), 2018</i>	
TECHNICAL TALKS	Guiliang Liu, Wang Zhu, Oliver Schulte. <b>Interpreting Deep Sports Analytics: Valuing Actions and Players in the NHL.</b> <i>Machine Learning and Data Mining for Sports Analytics Workshop at ECML-PKDD (MLSA, ECML-PKDD), 2018</i>	
	“Multistep Reasoning Transferability across Machine Reading Comprehension Benchmarks” • University of Southern California NLP Lunch, Los Angeles, CA, USA      Mar 2022	
	“Generalization Differences between End-to-End and Neuro-Symbolic Vision-Language	

Reasoning Systems”

• Mila - Quebec AI Institute, Montreal, QC, Canada

Oct 2022

“Evaluating the Robustness of Multi-Image Vision-and-Language Reasoning Systems”

• University of Southern California ML & Friends, Los Angeles, CA, USA Mar 2022

**PROFESSIONAL SERVICES** Reviewer of EMNLP 2021, ICML 2022, EMNLP 2022, CVPR 2023, ACL 2023.

**RESEARCH EXPERIENCE**

**Research Assistant**, University of Southern California

**Oct 2021 - present**

Allegro Lab & GLAMOR Lab

Advisor: Prof. Robin Jia & Prof. Jesse Thomason

• **Evaluating Vision-and-Language Reasoning**

→ Evaluated the robustness of widely-used multi-modal reasoning systems under both the multi-image and the single-image setups.

→ Designed special robustness tests for multi-image QA.

→ Re-designed a compositionally generalizable semantic parsing template for multi-image QA.

• **Vision-and-Language Navigation Pretraining**

→ Analyzed VLN agents by adding noise to the pretraining data.

→ Demonstrated word ordering and trajectory matching does not matter much in VLN pretraining.

→ Demonstrated the data quantity is more important than data quality in VLN pretraining.

→ Designed a nonsense-data augmentation method for effective VLN pretraining.

**Research Assistant**, University of Southern California

**Sep 2020 - Sep 2021**

Theoretical and Empirical Data Science Lab

Advisor: Prof. Fei Sha

• **Long Horizon Vision-and-Language Navigation**

→ Observed the limitation in the transferability of the existing VLN model.

→ Developed a baby-walk method to solve the problem.

→ The first agent in the VLN community that generalizes towards long-horizon.

• **Compositional Generalization on NLP**

→ Investigated learning representations that facilitate transfer learning from one compositional task to another.

→ Designed an iterative dueling game for the learner to solve the problem.

**Research Assistant**, Simon Fraser University

**Oct 2017 - May 2019**

Vision and Media Lab & Computing Logic Lab

Advisor: Prof. Greg Mori & Prof. Oliver Schulte

• **Active Object Search**

→ Developed a multi-object active object search method in a simulated environment.

• **Deep Reinforcement Learning on Sports**

→ Adopted linear model tree for Ice-Hockey sports player ranking

**TEACHING EXPERIENCE**

• In the Fall of 2022, I was a TA for CS567, USC’s master level machine learning course, taught by Vatsal Sharan. I led three 50-minute discussion sections, assisted students, graded quizzes, and designed one assignment and some questions for the quizzes.

**SKILLS**

**Operating Systems:** Linux, macOS, Windows  
**Programming Languages:** Python, LaTeX, Java, C/C++, Swift, Matlab  
**Tools/Framework:** Pytorch, Tensorflow, Git  
**Languages:** English (Proficient), Chinese (Native), Japanese (Beginner)

**AWARDS &  
SCHOLARSHIP**

USC Graduate School Fellowship	Jan 2021
SFU Presidents Honour Roll	Oct 2018
SFU Alumni Scholarship	Oct 2018
SFU Open Scholarship	Oct 2018
Undergraduate Student Research Awards	May 2018
SFU Entrance Scholarship	Sep 2017
The Mathematical Contest in Modeling, Meritorious Prize	Feb 2017
China National Scholarship	Oct 2016