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Research Keywords: Algorithmic Reasoning, Generalization, Complexity of Learning

EDUCATION

Carnegie Mellon University , Ph.D. in Language Technologies	2022 — 2026
• Advisor: Yonatan Bisk	
Carnegie Mellon University , M.S. in Language Technologies	2020 — 2022
• Advisor: Yonatan Bisk	GPA: 4.12/4.3
Hong Kong University of Science and Technology , B.S. in Computer Science and Mathematics	2016-2020
• Undergraduate Thesis Advisor: Qifeng Chen	GPA: 4.04/4.3

PUBLICATIONS

1. **Yingshan Chang**, and Yonatan Bisk. “*Model Successor Functions*” arXiv preprint arXiv:2502.00197 (2025).
2. **Yingshan Chang** and Yonatan Bisk. “*Language Models Need Inductive Biases to Count Inductively*” In Proceedings of the Thirteenth International Conference on Learning Representations, ICLR 2025.
3. Jimin Sun, So Yeon Min, **Yingshan Chang**, and Yonatan Bisk. “*Tools Fail: Detecting Silent Errors in Faulty Tools*” In Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing, EMNLP 2024.
4. Shaurya Dewan, Rushikesh Zawar, Prakanshul Saxena, **Yingshan Chang**, Andrew Luo, Yonatan Bisk. “*DiffusionPID: Interpreting Diffusion via Partial Information Decomposition*” Advances in Neural Information Processing Systems 37, Neurips 2024.
5. **Yingshan Chang**, Yasi Zhang, Zhiyuan Fang, Yingnian Wu, Yonatan Bisk, and Feng Gao. “*Skews in the Phenomenon Space Hinder Generalization in Text-to-Image Generation*” European Conference on Computer Vision, ECCV 2024.
6. Syeda Nahida Akter, Sangwu Lee, **Yingshan Chang**, Yonatan Bisk, and Eric Nyberg. “*VISREAS: Complex Visual Reasoning with Unanswerable Questions*” In Findings of the Association for Computational Linguistics: ACL 2024.
7. Liangke Gui*, **Yingshan Chang***, Qiuyuan Huang, Subhojit Som, Alexander G Hauptmann, Jianfeng Gao and Yonatan Bisk. “*Training Vision-Language Transformers from Captions*” In Transactions on Machine Learning Research, pp. 2835-8856. 2023.
8. **Yingshan Chang**, Mridu Narang, Hisami Suzuki, Guihong Cao, Jianfeng Gao, and Yonatan Bisk. “*Webqa: Multihop and multimodal QA*” In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, pp. 16495-16504. 2022. **Oral.**
9. **Yingshan Chang**, and Yonatan Bisk. “*WebQA: A Multimodal Multihop NeurIPS Challenge*” In NeurIPS 2021 Competitions and Demonstrations Track, pp. 232-245. PMLR, 2022.

PROFESSIONAL SERVICE

Conference Reviewer

ICML 25, 24, 23
ICLR 25, 24
NeurIPS 24, 23, 22
CVPR 24, 23
TMLR 23, 22
EMNLP 23, 22
ACL 23

INDUSTRY EXPERIENCE

Amazon , Research Intern	Summer 2024
• Manager: Qiaozi Gao	
Amazon AlexaAI , Research Intern	Summer 2023
• Manager: Govind Thattai	
• Mentor: Feng Gao	
Microsoft Research , Research Intern	Summer 2022
• Manager: Jianfeng Gao	
Bank of China Software Center , Software Engineering Intern	Summer 2018

DEPARTMENTAL SERVICE

Teaching Assistant: 11777 Multimodal Machine Learning , <i>Carnegie Mellon University</i>	Spring 2024 & Spring 2023
MLT/PhD Admissions Committee Student Volunteer , <i>Carnegie Mellon University</i>	2022 – 2023
Graduate Application Support Program Mentor , <i>Carnegie Mellon University</i>	2021 – 2022
Student Ambassador , <i>Hong Kong University of Science and Technology</i>	2017 – 2020
Student Lab Helper , <i>Hong Kong University of Science and Technology</i>	Fall 2018

AWARDS

Carnegie Mellon University Research Fellowship , <i>Carnegie Mellon University</i>	2020 – 2022
Academic Achievement Medal , <i>Hong Kong University of Science and Technology</i>	2020
Bachelor Degree First Class Honor , <i>Hong Kong University of Science and Technology</i>	2020
Dean's List , <i>Hong Kong University of Science and Technology</i>	2016 – 2020
University's Scholarship Scheme for Continuing Undergraduate Students	2016 – 2019
The Cheng Foundation Scholarships for Chinese Mainland Undergraduate Students	2018 – 2019
The Hong Kong Electric Co.Ltd. Scholarship	2017 – 2018
Mingxi Youth Award Scheme	2017 – 2018

SKILLS

Tools and Programming	Python, PyTorch, Git, \LaTeX , Markdown, Numpy, HTML/CSS, JavaScript, Java, Matlab, R, d3
Communication	Mandarin (native), English (proficient), French (beginner)