Yingshan Chang

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Research Keywords: Reasoning, Generalization, Mechanistic Interpretability

Education

Carnegie Mellon University, Ph.D. in Language Technologies   2022 — 2027

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 Research Advisor: Qifeng Chen   GPA: 4.04/4.3

Publications

1. **Yingshan Chang** and Yonatan Bisk. "*Language Models Need Inductive Biases to Count Inductively*" arXiv:2405.20131.

2. Shaurya Dewan, Rushikesh Zawar, Prakanshul Saxena, **Yingshan Chang**, Andrew Luo, Yonatan Bisk. "*DiffusionPID: Interpreting Diffusion via Partial Information Decomposition*" arXiv:2406.05191

3. **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.

4. 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.

5. 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.

6. **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.**

7. **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

ICLR 24
TMLR 23, 22
EMNLP 23, 22
NeurIPS 24, 23, 22
CVPR 24, 23
ICML 24, 23
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, *Carnegie Mellon University*   Spring 2024 & Spring 2023
MLT/PhD Admissions Committee Student Volunteer, *Carnegie Mellon University*   2022 — 2023
Graduate Application Support Program Mentor, *Carnegie Mellon University*   2021 — 2022
Student Ambassador, *Hong Kong University of Science and Technology*   2017 — 2020
Student Lab Helper, *Hong Kong University of Science and Technology*   Fall 2018

Awards

Carnegie Mellon University Research Fellowship, *Carnegie Mellon University*   2020 – 2022
Academic Achievement Medal, *Hong Kong University of Science and Technology*   2020
Bachelor Degree First Class Honor, *Hong Kong University of Science and Technology*   2020
Dean's List, *Hong Kong University of Science and Technology*   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)