

Research Keywords: Natural Language Processing, Reasoning, Compositionality, Multimodal Knowledge Aggregation

Key to my research goal is the following questions:

- 1) **How to endow machines with reusable skills that can be compositionally built up to achieve systematic generalization?**
- 2) **What appropriate roles can language play in (1),** drawing inspiration from how humans use language as a medium to:
 - Acquire knowledge (language as **instruction**, human→computer);
 - Externalize thoughts (language as **explanation**, computer→human);
 - Exchange information (language as **communication**, computer→computer).

EDUCATION

Master of Language Technologies, Carnegie Mellon University GPA: 4.12/4.3	08/2020 — 08/2022
Bachelor of Science in Computer Science, Hong Kong University of Science and Technology GPA: 4.038/4.3	09/2016 — 06/2020
<i>First Class Honors, additional major in Mathematics</i>	
Outbound Exchange, Georgia Institute of Technology GPA: 4.0/4.0	01/2019 — 05/2019
AEARU STEM Summer Camp, Peking University GPA: 93/100	07/2018

RESEARCH

Graduate Research Assistant / WebQA: Multihop and Multimodal QA	09/2020 — Present
<i>Advised by Yonatan Bisk Paper Leaderboard Website</i> • Crowdsourced a dataset with knowledge-seeking QA pairs and multimodal (image+snippets) knowledge sources. • Mined hard negatives which have high lexical overlap with the question or positive sources, while lacking reference to the answer. • Adversarially created the train/test split such that the majority answers concluded from the training set cannot carry over to testing, thus suppressing purely statistical approaches. • Implemented baseline models for WebQA under both fine-tuning (finetune a vision-and-language Transformer) and few-shot (prompt GPT-3 with engineered prefixes) settings. • Accepted to NeurIPS 2021 Competition Track. In submission to CVPR2022. (First Author)	
Undergrad Final Year Project / Low-Light Video Enhancement Using Deep Learning	08/2019 — 05/2020
<i>Advised by Qifeng Chen Thesis</i> • Designed a novel method for collecting dark and blurry video frames with corresponding bright and sharp ground-truth images. • Proposed an end-to-end CNN pipeline with a fine-tuning strategy for low-light video enhancement. • Evaluated end-to-end training on the collected dataset with both quantitative metrics and qualitative human evaluation.	
Visiting Research Assistant / Event-to-Sentence Using BERT in Automatic Story Generation	05/2019 — 08/2019
<i>Advised by Mark Riedl</i> • Implemented a Fill-in-the-Blank and an Editing-Writing network based on BERT, which is able to expand an event <sbj, pred, obj> tuple into a sentence. • Investigated the contributions of pre-trained unsupervised models to story generation.	
Undergrad Research Project / Building a Blockchain and Smart Contract Application	09/2018 — 12/2018
<i>Advised by Shing-Chi Cheung</i> • Implemented a smart contract based on Ethereum framework. • Developed a web interface for user interaction, supporting functions for transaction creation, manipulation and approval.	
Undergrad Research Project / Smart Home Solutions with Gesture Interaction	06/2017 — 08/2017
<i>Advised by Xiaojuan Ma</i> • Built a gesture-control light that works together with a gesture sensor and a PC in a local wifi network.	

SKILLS

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

INTERNSHIP

HKUST Student Lab Helper / COMP2611	09/2018 — 12/2018
• Assisted teaching and helped students complete programming assignments in lab sessions	
Summer Intern / Bank of China Software Center	06/2018 — 06/2018
• Assisted in value analysis and revision of 46 innovation initiatives related to mobile banking service. • Audited the Developers Conference and two cloud platform trainings directed by IBM and CloudWalk.	