Tenghao Huang

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Research interests

NLP, Information & Knowledge Retrieval, Computational Creativity

Education

University of Southern California — Los Angeles
Ph.D., Computer Science — Expected May 2027

University of North Carolina at Chapel Hill — Chapel Hill
B.S., Computer Science, B.S., Mathematics — Aug 2018 - May 2022

Publications

Planning and Editing What You Retrieve for Enhanced Tool Learning
T Huang, D Jung, V Kumar, M Kachuee, X Li, P Xu, M Chen. *NAACL 2024*
✦ Developed a system leveraging the LLM's reasoning to learn better representation of tools.

Few-shot parameter-efficient fine-tuning is better and cheaper than in-context learning
H Liu, D Tam, M Muqeeth, J Mohta, T Huang, M Bansal, C Raffel. *NeurIPS 2022*
✦ Introduce a new parameter-efficient fine-tuning method called $(IA)^3$ that scales activations by learned vectors, attaining stronger performance

Affective and Dynamic Beam Search for Story Generation
T Huang, E Qasemi, B Li, H Wang, F Brahman, M Chen, S Chaturvedi. *Findings of EMNLP 2023*
✦ Introduced Affective Story Generator, a novel model inspired by literature criticism theories, for creating engaging narratives with unexpected twists

Read Top News First: A Document Reordering Approach for Multi-document News Summarization
T Huang*, C Zhao*, SBR Chowdhury, S Chaturvedi. *Findings of ACL , 2022.*
(* indicates equal contribution)
✦ Propose a simple data-centric saliency-based reordering approach to solve multi-document summarization, significantly outperforming previous state-of-the-art methods that use more complex model architectures

Uncovering Implicit Gender Bias in Narratives through Commonsense Inference
T Huang, F Brahman, V Shwartz, S Chaturvedi. *Findings of EMNLP, 2021.*
✦ Propose a method for uncovering implicit gender bias from GPT-2 generated stories via commonsense reasoning

Revisiting Generative Commonsense Reasoning: A Pre-Ordering Approach
C Zhao, F Brahman, T Huang, S Chaturvedi. *Findings of NAACL, 2021.*
✦ Propose a pre-ordering approach to elaborately manipulate the order of the given concepts before generation, outperforming more sophisticated models that have access to a lot of external data and resources.

Git Theta: A Version Control System For Machine Learning Models
ICML 2023
✦ Facilitate collaborative and continual improvement of ML models.
✦ Allow fine-grained tracking of changes to a model's parameters alongside code and other artifact

Talks and tutorials

Affect Theories X AI September 2023
Hosted by Professor Dennis Tenen at Columbia University

Research experience

Research Assistant
Mentors: Prof. Muhao Chen, Prof. Xuezhe Ma (USC) August 2022 – Present

- Develop knowledge-augmented and temporal-aware question answering systems on procedural questions (e.g. "how-to" questions)
- Develop a system for monitoring and forecasting multi-document newsworthy event

Research Assistant
Mentor: Prof. Snigdha Chaturvedi (UNC-CH) August 2020 – May 2022

- Study how to make large language models generate more engaging, human-like discourse

Research Assistant
Mentor: Prof. Colin Raffel (UNC-CH) August 2021 – May 2022

- Study few-shot learning and large language model efficiency

Industry Experience

Amazon Alexa AI Bellevue, Washington
Applied Science Intern Summer 2023
Focus on grounding natural language to code, improving foundation model's performance on downstream tasks like API/tool learning, code completion, and argument filling, etc.

Lexis Nexis Raleigh, North Carolina
Software Engineer Intern Summer 2020

Refactored code and componentized reusable modules to support similar functions to increase code readability, decrease page load time and tech debt

Awards

ICML travel award	2023
USC-ISI Distinguished Graduate Student Researcher Fellowship	2022
NAACL travel award	2022
Stephen F. Weiss Award nomination at UNC	2022

Teaching Experience

Guest Lecturer — UNC-CH
COMP 590: Natural Language Processing — Spring 2022

Teaching Assistant — USC
CSCI 567: Machine Learning — Fall 2023

Teaching Assistant — UNC-CH
COMP 410: Data Structure — Fall 2020, Spring 2021

Service and outreach

Reviewer: ACL, IJCNLP-AACL, EMNLP, ARR.
Volunteer: ICML

Skills

Programming Languages: Python, Java, C++, C, SQL.