XINRAN ZHAO

xzhaoar@connect.ust.hk | +852 65862973 | github: colinzhaoust

EDUCATION

The Hong Kong University of Science and Technology *2016 - 2020, Hong Kong*

GPA = 3.958 (Academic Achievement Medal)

- Bachelor of Engineering, majoring in Computer Science
- Relevant Coursework:
  - Explore & Visualize Data - OOP & Data Structures (Honor) - Discrete Math Tools
  - Design & Analy. of Algori - Statistical Learning Models for Text and Graph Data (Graduate Level)
  - Big Data Mining & Management - Deep Learning for Computer Vision - Matrix Algebra

Cornell University *2018, NY, US*

- International Exchange Program in Computer Science
- Relevant Coursework: - Machine Learning -Natural Language Processing - Operating Systems

RESEARCH EXPERIENCE

WinoWhy: A Deep Diagnose of Essential Commonsense Knowledge for Answering Winograd Schema Challenge

- *advised by Hongming Zhang and Prof. Yangqiu Song* *Aug 2019 - present, HK*
  - Proposed a novel dataset containing categorized human text that justifies the reasons behind commonsense pronoun reference choices in Winograd Schema Challenge to point out what kinds of essential commonsense knowledge are needed, with which we could point out the strength and the limitation of current models as well as possible directions.
  - Proposed a new task, WinoWhy, which requires models to determine the plausibility of collected reasons from similar adversarial examples from humans and generative models to perform as a next-stage challenge testing the model performance in understanding the commonsense reasoning.
  - Paper accepted by ACL 2020 (`https://www.aclweb.org/anthology/2020.acl-main.508.pdf`).

User Attitude Classification with Multitask Learning

- *advised by Esin Durmus and Prof. Claire Cardie* *March 2019 - present, Cornell*
  - Used a multitask learning framework to help predict the online forum users' stance on controversial political issues with their background and arguments through leveraging the possible correlations among the issues, which shows robust improvement than single task models.
  - Captured, visualized, and analyzed the relationship among political issues though a novel embedding-based method. Predicted similar tasks show comparable performance with human intuition for jointly predicted task selection and enhance the prediction accuracy greatly.
  - Paper to be submitted to NAACL 2021.

A Brief Survey and Comparative Study of Recent Development of Pronoun Coreference Resolution

- *advised by Hongming Zhang and Prof. Yangqiu Song* *Jan 2020 - Mar 2020, HK*
  - Surveyed in detail on the datasets (ordinary ones, hard ones requiring external knowledge and others for special purposes) and models (from traditional ones to neural based end-to-end models) commonly used for the Pronoun Coreference Resolution task.
  - Experimented on the performance of finetuning approach on different data subsets with different relevance to the test set, which shows that the performance gain comes from both the data similarity and the underneath knowledge in solving the task.
  - Paper arxived with code available (`https://arxiv.org/abs/2009.12721`).

Learning Contextual Causality from Time-consecutive Images

- *advised by Hongming Zhang and Prof. Yangqiu Song* *Aug 2019 - present, HK*

- Designed a novel task studying contextual causal knowledge from videos and proposed a corresponding dataset containing human annotate events and causality inferred from video frame sequences.
- Proposed a Vision-Contextual Causal (VCC) model that can utilize the images as context to better acquire causal knowledge from consecutive videos.
- Paper submitted to AAAI 2021 (under Phase II reviewing).

Seek to Embed ASER: A Large-scale Eventuality Knowledge Graph

- *advised by Xin Liu and Prof. Yangqiu Song* *May 2019 - July 2019, HK*

- Designed a novel model combining text embedding and graph embedding algorithms to learn the node embedding for ASER, with text as nodes and eventuality relations as edges.
- Provided useful signals for link prediction, unknown event resolution and representation captioning on the graph, with a model utilizing BERT embeddings and LSTM.
- Paper accepted by WWW 2020, as an acknowledged contributor (`https://arxiv.org/abs/1905.00270`).

An Online Learning Platform with NLP Supported Teaching Assistant

- *final year project, advised by Prof. Dit-Yan Yeung* *June 2019 - present, HK*

- Seek to build an online learning platform with NLP supported widgets, including question answering module and auto quiz generator module. Question answering module retrieves video chunks from lecture videos to answer students' queries. Auto quiz generator generates basic quizzes from auto rectified and masked lecture subtitles.

Mining Course Structure for Course Recommendation

- *undergraduate research opportunity, advised by Prof. Raymond Wong* *June 2018 - Aug 2018, HK*

- Built a course recommendation and academic planner model based on course dependency graph (generated from school major requirements) and past students' performance records.
- Served as part of the unreleased official HKUST undergraduate course planner, providing requirement fulfilment checker and study path recommendation service.

WORK EXPERIENCE

Research Assistant

- *Supervised by Prof. Dit-Yan Yeung* *Sep 2020 - present, HK*

- Working on the AI language tutor program focusing on the area of text simplification.

EXTRA-CIRRUCULAR

HKUST Madarin Debate Team

- *Team Member* *Sep 2016 - present, HK*

- Championship for the HK, Macau, Mainland: Three places Debate Championship
- Top 8 for the Sixth and Seventh International Mandarin Debate Invitational in Singapore

ABOUT ME

Programming: Python, C++, Java, JavaScript, HTML, Matlab, Pytorch, Keras/Tensorflow, Scikit-learn, Numpy, Spacy, NLTK, Amazon Turk, etc.

Languages: English (proficient), Mandarin (Native), Leshan Dialect (Native)

Interests: Archery, Gym, Engraving, Basketball, Tranditional Poem Writing