

YU ZHOU

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EDUCATION

University of California, Los Angeles

Sep 2019 - Dec 2024

Bachelor of Science in Mathematics of Computation with Minor in Data Science Engineering

- Overall GPA: 3.94 / 4.0

SELECTED PUBLICATIONS

Non-Sequential Graph Script Induction via Multimedia Grounding 📄

ACL 2023

Yu Zhou, Sha Li, Manling Li, Xudong Lin, Shih-Fu Chang, Mohit Bansal, Heng Ji

Localizing Active Objects from Egocentric Vision with Symbolic World Knowledge 📄

EMNLP 2023 (Oral)

Te-Lin Wu, Yu Zhou* (equal contribution), Nanyun Peng*

Dialectal Biases in Text-to-Image Generative Models 📄

TACL 2024 (to be submitted)

Yu Zhou, Da Yin, Allen Cheung, Connor Couture, Kai-Wei Chang, Nanyun Peng

RESEARCH EXPERIENCE

University of California, Los Angeles

February 2023 – Present

advisors: Prof. Nanyun Peng, Kai-Wei Chang

- Significantly improved **active object detection and tracking** in egocentric videos via symbolic **knowledge extraction, reasoning, and joint inference**.
- Created a multi-dialectal benchmark to **evaluate dialectal bias** in text-to-image generative models and proposed efficient + effective **mitigation** strategies. (Microsoft Research Fellow Proposal under review)
- Researching targeted visual data augmentation to improve **object & event recognition** based on few-shot **contrastive human feedback**.

University of Illinois Urbana-Champaign

May 2022 – January 2023

advisors: Prof. Heng Ji, Mohit Bansal, Shih-Fu Chang

- Introduced **graph script learning** for **procedural tasks** aiming to capture sequential, optional, and interchangeable step relationships. Designed a SOTA **constrained generation** model that learns from existing **video and textual** resources to produce explicit schema graphs and improve downstream planning tasks.

Tsinghua University

May 2021 – April 2022

advisor: Prof. Juanzi Li

- Collaborated to implement Iterative Strict Density-Based Clustering for Chinese News Streams (**CCIR 2021**).
- Collaborated to construct CStory, a new large-scale Chinese news story-line dataset resource (**CIKM 2022**).

RESEARCH COURSE PROJECTS

Advancing Transformers' Capabilities in Commonsense Reasoning

Fall 2022

advisor: Prof. Nanyun Peng

- Led team of 4 to improve commonsense reasoning by **>63% over previous SOTA** on the Com2Sense hidden testset.
- Ranked **#1 among 12 teams** and was submitted to DARPA Machine Common Sense (MCS) Project Evaluation.

Hard Label Black Box Node Injection Attack on Graph Neural Networks

Spring 2022

advisor: Prof. Yizhou Sun

- Proposed the first non-targeted hard-label black box node injection attack on GNNs for graph classification.
- Achieves high attack success rate with low perturbation budget for on three scientific and social graph datasets.

Current Developments in Object Detection (Survey)

Winter 2022

advisor: Prof. Bolei Zhou

- Evaluated detection-head/neck/backbone components of 26 current object detection algorithms w.r.t performance and robustness against real-world black-box adversarial attacks. Project ranked **#1 among 21 teams**.

ACADEMIC ACTIVITIES

Conference Presentations: EMNLP 2023 (Oral), ACL 2023 (Poster), SoCal NLP 2023 (Poster)
Reviewer / Program Committee: EMNLP 2023, ACL 2023, EMNLP 2023 Industry Track
Awards Committee: SoCal NLP Symposium 2023
Conference Volunteer: ACL 2023

SKILLS

Programming: C/C++, Python, JavaScript, SQL, R, MATLAB, HTML, CSS
Technologies: UNIX, Git, React, PostgreSQL, MongoDB, Redis, Neo4j
Machine Learning: PyTorch, TensorFlow, MapReduce, Apache Spark

RELEVANT COURSES

Fairness, Transparency, and Robustness in Natural Language Processing (PhD) *Winter 2023*
- Prof. Kai-Wei Chang (Grade: A+)

Natural Language Processing *Fall 2022*
- Prof. Nanyun Peng (Grade: A+)

Graph Neural Networks (PhD) *Spring 2022*
- Prof. Yizhou Sun (Grade: A)

Deep Learning for Computer Vision *Winter 2022*
- Prof. Bolei Zhou (Grade: A+)

Artificial Intelligence *Winter 2022*
- Prof. Quanquan Gu (Grade: A+)

Machine Learning *Winter 2021*
- Prof. Sriram Sankararaman (Grade: A+)

Algorithms and Complexity *Spring 2021*
- Prof. Cho-Jui Hsieh (Grade: A+)

OTHER PUBLICATIONS

Iterative Strict Density-Based Clustering for News Stream *CCIR 2021*
Kaijie Shi, Jiaxin Shi, Yu Zhou, Lei Hou, Juanzi Li

Measurement methods of radial flow in relativistic heavy-ion collisions *Physical Review C (Journal)*
Peng Yang, Lin Li, Yu Zhou, Zhiming Li, Mingmei Xu, Yeyin Zhao, Yuanfang Wu

Machine learning phase transitions of the three-dimensional Ising universality class *Chinese Physics C (Journal)*
Xiaobing Li, Ranran Guo, Yu Zhou, Kangning Liu, Jia Zhao, Fen Long, Yuanfang Wu, Zhiming Li

Investigations into the characteristics and influences of nonequilibrium evolution *Physical Review C (Journal)*
Xiaobing Li, Mingmei Xu, Yanhua Zhang, Zhiming Li, Yu Zhou, Jinghua Fu, Yuanfang Wu

Locating fixed points in the phase plane *Physical Review E (Journal)*
Yanhua Zhang, Yeyin Zhao, Lizhu Chen, Xue Pan, Mingmei Xu, Zhiming Li, Yu Zhou, Yuanfang Wu