

YUWEI ZHANG

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RESEARCH INTEREST

I have broad interest in Natural Language Processing and Vision-Language Learning. Previously, I worked on *reducing the annotation cost* and *improving out-of-distribution robustness* by leveraging various supervision or self-supervision signals. Currently, I am working on improving embedding models, information extraction from large amount of data and their collaborations with large language models (LLMs).

EDUCATION

University of California, San Diego, San Diego, CA, U.S.

Ph.D. in Data Science, Advisor: Prof. [Jingbo Shang](#) *Sept, 2023 – Jun, 2028*

University of California, San Diego, San Diego, CA, U.S.

M.S. in Electrical Engineering, track: Machine Learning & Data Science *Sept, 2021 – Jun, 2023*

- **GPA: 4.0/4.0**
- **Selected Courses:** Programming for Data Analysis (A+), Advanced Statistical NLP (A+), GPU Programming (A), Recommender Sys&Web Mining (A+), Probabilistic Reason&Learning (A)

Nankai University, Tianjin, P.R.China

B.S. in Physics *Aug, 2016 – Jun, 2020*

- **GPA: 87.81/100 (equivalent to 3.7/4.0)**
- Graduate from **Physics Boling Class**, Nankai University

PUBLICATIONS & MANUSCRIPTS

Yuwei Zhang, Zihan Wang, Jingbo Shang. ClusterLLM: Large Language Models as a Guide for Text Clustering. Accepted by *EMNLP 2023*. [\[paper\]](#) [\[code\]](#)

Yuwei Zhang*, Chih-Hui Ho*, Nuno Vasconcelos. Toward Unsupervised Realistic Visual Question Answering. Accepted by *ICCV 2023*. [\[paper\]](#) [\[code\]](#)

Haode Zhang, Haowen Liang, **Yuwei Zhang**, Liming Zhan, Xiao-Ming Wu, Xiaolei Lu, Albert Y.S. Lam. Fine-tuning Pre-trained Language Models for Few-shot Intent Detection: Supervised Pre-training and Isotropization. Accepted by *NAACL 2022*. [\[paper\]](#) [\[code\]](#)

Yuwei Zhang, Haode Zhang, Li-Ming Zhan, Xiao-Ming Wu, Albert Y.S. Lam. New Intent Discovery with Pre-training and Contrastive Learning. Accepted by *ACL 2022*. [\[paper\]](#) [\[code\]](#)

Haode Zhang*, **Yuwei Zhang***, Li-Ming Zhan, Jiaxin Chen, Guangyuan Shi, Xiao-Ming Wu, Albert Y.S. Lam. Effectiveness of Pre-training for Few-shot Intent Classification. Accepted by *Findings of EMNLP 2021 (short)*. [\[paper\]](#) [\[code\]](#)

Yuwei Zhang*, Shuai Xu*, Ronghua Zhang, Zhichao Deng, Yin Liu, Jianguo Tian, Li Yu, Qiongzhen Hu, Qing Ye. Automated Calculation of Liquid Crystal Sensing Images Based on Deep Learning. Accepted by *Analytical Chemistry*. [\[paper\]](#)

Jing Li*, **Yuwei Zhang***, Qing Chen, Zhenhua Pan, Jun Chen, Meixiu Sun, Junfeng Wang, Yingxin Li, Qing Ye. Development and validation of a screening model for lung cancer using machine learning: a large-scale, multi-center study of biomarkers in breath. Accepted by *Frontiers in Oncology*. [\[paper\]](#)

Chengjin Wang*, **Yuwei Zhang***, Shuai Xu, Yuyan Liu, Lindan Xie, Changlong Wu, Qianhui Yang, Yanhua Chu, Qing Ye. Research on assistant diagnosis of fundus optic neuropathy based on deep learning. Accepted by *Current Eye Research*. [[paper](#)]

Matthew Ricci, Minju Jung, **Yuwei Zhang**, Mathieu Chalvidal, Aneri Soni, Thomas Serre. KuraNet: Systems of Coupled Oscillators that Learn to Synchronize. [[paper](#)] [[code](#)]

RESEARCH EXPERIENCE

Amazon AWS, WA, U.S.

July. 2023 – Sept. 2023

Job Title: Applied Scientist Intern

University of California, San Diego, CA, U.S.

Shang Lab, Department of Computer Science and Engineering

Dec. 2022 – Mar. 2023

Research Assistant, Advisor: Prof. [Jingbo Shang](#)

Project: Large Language Model Guided Clustering

- Proposed triplet selection task to help improve clustering and quality and pairwise relation task to help improve clustering granularity.

University of California, San Diego, CA, U.S.

SVCL Lab, Department of Electrical and Computer Engineering

Jan. 2022 – Nov. 2022

Research Assistant, Advisor: Prof. [Nuno Vasconcelos](#)

Project: Vision-Language Learning

- Proposed dataset and algorithms for detecting unanswerable questions in Visual Question Answering.

The Hong Kong Polytechnic University, HK S.A.R

Department of Computing

Apr. 2021 – Aug. 2021

Research Assistant, Advisor: Prof. [Xiaoming Wu](#)

Project: Intent Recognition for Task-oriented Dialogue

- Proposed IntentBERT together with Haode Zhang, a simple and effective pre-training method for few-shot intent recognition. Later improved by regularizing the feature space towards isotropization.
- Proposed MTP-CLNN, a two-stage training framework for new intent discovery. The task aims to uncover novel intent categories from user utterances to expand the set of supported intent classes.

Nankai University, Tianjin, P.R. China

School of Physics

Jun. 2020 – Nov. 2020

Research Assistant, Advisor: Prof. [Qing Ye](#)

Project: Automated Calculation of Liquid Crystal Sensing Images Based on Deep Learning

- Collected liquid crystal microscopies with annotations. Propose a heuristical method for grid detection. Train a U-Net for response segmentation. Implemented a real-time detection software.

Project: Development of a Screening Model for Lung Cancer Using Machine Learning

- Feature selection and classification models to detect lung cancer with biomarkers in breath.

Project: Fundus Optic Neuropathy Diagnosis Using Deep Learning

- Collect diagnosis data. Train CNN for classification. Explain via visualization.

Brown University, RI, U.S.

Serre Lab, Carney Institute for Brain Science

Aug. 2019 – Dec. 2019

Research Assistant, Advisor: Prof. [Thomas Serre](#)

Project: Systems of Coupled Oscillators that Learn to Synchronize

- Proposed KuraNet with Matthew Ricci etc. for learning couplings between oscillators.

SCHOLARSHIPS & AWARDS

- **2022 Summer** UCSD ECE Summer Research Internship Program (SRIP)
- **2018-2019** Outstanding College Student Scholarship of Technical Institute of Physics and Chemistry, Chinese Academy of Science
- **2016-2017** Boling Scholarship of Nankai University (**10** out of **160** undergrad students)