YUWEI ZHANG

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RESEARCH INTEREST

I have broad interest in Natural Language Processing and Vision-Language Learning. Specifically, I have been working on *reducing the annotation cost* and *improving out-of-distribution robustness* by leveraging various supervision or self-supervision signals.

EDUCATION

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

Master of Engineering in Machine Learning & Data Science *Sept, 2021 – Jun, 2023*

- **GPA: 4.0/4.0**
- **Selected Courses:** Statistical Learning I (A), Statistical Learning II (A), Programming for Data Analysis (A+), Prob & Stats for Data Science (A+), Advanced Statistical NLP (A+), Linear Algebra and Application (A), Statistical Natural Lang Proc (A+), Intro to Visual Learning (A+)

Nankai University, Tianjin, P.R.China

Bachelor of Science in Physics *Aug, 2016 – Jun, 2020*

- **GPA: 87.81/100 (equivalent to 3.7/4.0)**
- Graduate from **Physics Boling Class**, Nankai University
- **Selected Courses:** Multivariate Calculus (92/100), Classical Statistics with MATLAB Application (93/100), Data Structures and Algorithms (91/100), Linear Algebra (96/100), Methods of Mathematical Physics (90/100), An introduction to the Theory of Groups (93/100)

SCHOLARSHIPS & AWARDS

- **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)

PUBLICATIONS & MANUSCRIPTS

1 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]

2 **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]

3 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*. [paper] [code]

4 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

University of California, San Diego, CA, U.S.
SVCL Lab, Department of Electrical and Computer Engineering *Jan, 2022 – Today*
Research Assistant, Advisor: Prof. Nuno Vasconcelos
Project: Vision-Language Learning

The Hong Kong Polytechnic University, HK S.A.R
Department of Computing *April, 2021 – Aug, 2021*
Research Assistant, Advisor: Prof. Xiaoming Wu
Project: Intent Recognition for Task-oriented Dialogue

- Proposed IntentBERT together with Haode Zhang, a surprisingly simple but effective pre-training method for few-shot intent recognition by leveraging labeled public intent data and unlabeled target domain data.
- Collaborated in improving IntentBERT 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. We tackled the problem by leveraging pre-training and contrastive learning.

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 that takes video frames from microscopy cameras and output segmented responses.

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 together with Matthew Ricci and Minju Jung etc., a deep-learning-based system of coupled oscillators that can learn to synchronize across a distribution of disordered network conditions.

PROGRAMMING SKILLS

Proficient	Python, PyTorch, Markdown, LaTeX, Git
Familiar	Linux, C++, TensorFlow, Keras, MATLAB, HTML, etc.

LANGUAGE SKILLS

TOEFL iBT	109/120 (Reading 30, Listening 28, Speaking 25, Writing 26)
GRE	320/340+4.0/6.0 (Verbal 152, Quantitative 168, Analytical Writing 4.0)