YU FEI

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EDUCATION

University of California, Irvine 09/2023 - Present
Ph.D. Student, Computer Science California, United States

- Advisor: Prof. Sameer Singh

ETH Zurich 09/2019 - 06/2022
M.Sc. in Computer Science, with distinction, GPA: 5.84/6, top 3% Zurich, Switzerland

- Thesis advisor: Prof. Mrinmaya Sachan

Peking University 09/2015 - 07/2019
B.S. in Mechanics, GPA: 3.71/4.0, top 10% Beijing, China

- Thesis advisor: Prof. Yizhou Wang

RESEARCH EXPERIENCE

EPFL NLP Lab 07/2022 - 01/2023
Research assistant with Prof. Antoine Bosselut Lausanne, Switzerland

- Showed that the word distribution of the downstream datasets could bias the model's prediction in few-shot in-context learning [2]
- Proposed a simple calibration technique that boosts the zero-/few-shot in-context learning performance of large language models by up to 20% on average over 24 datasets [2]
- Designed an intrinsic metric for measuring the in-context learnability of NLP tasks

ETH Zurich Mrinmaya's Lab 11/2021 - 06/2022
Master thesis with Prof. Mrinmaya Sachan Zurich, Switzerland

- Demonstrated that simply clustering sentence embeddings gives superior zero-shot text classification performance to existing methods like prompting and self-training [3]

ETH Zurich Data Analytics Lab 11/2020 - 06/2021
Semester thesis with Dr. Nathanal Perraudin & Dr. Aurelien Lucchi Zurich, Switzerland

- Proposed a framework that learns simultaneously a graph that captures the data structure and a graph model to tackle the problem of learning when the data's inner structure is unknown [5]
- Designed and conducted extensive experiments on synthetic, self-collected, and benchmark datasets showing the feasibility of the problem, the competitive performance, and better interpretability of our framework [5]

Deepwise & Peking University Chest X-ray research team 10/2018 - 08/2019
Research assistant with Prof. Yizhou Wang Beijing, China

- Adapted PSPNet for organ segmentation of chest X-rays and developed a learnable alignment module to adjust all the input images, which eliminates variations of scales, angles, and displacements [4]
- Proposed a contextual attention generator that produces attention maps providing efficient locating information for abnormalities in a semi-supervised manner based on given X-ray pairs [4]
- Applied active learning to the Chestx-ray8 dataset for efficient labeling

UCLA, Cross-disciplinary Scholars in Science & Technology (CSST) 07/2018 - 09/2018
Research assistant with Prof. Lei He California, United States

- Designed and implemented an offline, small-sized keyword-spotting system for embedded application
- Developed a new body architecture based on depthwise-separable CNN that achieves a reduction of $> 70\%$ in model size and complexity while retaining 93% of the accuracy

PUBLICATIONS & PREPRINTS

[1] *Towards a Mechanistic Interpretation of Multi-Step Reasoning Capabilities of Language Models*
Yifan Hou, Jiaoda Li, **Yu Fei**, Alessandro Stolfo, Wangchunshu Zhou, Guangtao Zeng, Antoine Bosselut, Mrinmaya Sachan. In *Proceedings of Empirical Methods in Natural Language Processing (EMNLP), 2023*

[2] *Mitigating Label Biases for In-context Learning*
Yu Fei, Yifan Hou, Zeming Chen, Antoine Bosselut. In *Proceedings of Annual Meeting of the Association for Computational Linguistics (ACL), 2023*

[3] *Beyond Prompting: Making Pre-trained Language Models Better Zero-shot Learners by Clustering Representations*
Yu Fei, Zhao Meng, Ping Nie, Roger Wattenhofer, Mrinmaya Sachan. In *Proceedings of Empirical Methods in Natural Language Processing (EMNLP), 2022*

[4] *Align, attend and locate: Chest x-ray diagnosis via contrast-induced attention network with limited supervision*
Liu J., Zhao G., **Fei Y.**, Zhang M., Wang Y., & Yu Y. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), 2019*

[5] *Deep Manifold Learning*
Yu Fei. *Semester Thesis, ETH Zurich, 2021*

TEACHING ASSISTANT

Computational Intelligence Lab, ETH Zurich 03/2021 - 08/2021

- Wrote a 127-page lecture note

Deep Learning, ETH Zurich 09/2021 - 02/2022

LEADERSHIP EXPERIENCE

University-level Sports Leadership 09/2016 - 07/2017

- Vice-captain of the men's volleyball team at Peking University
- Arranged weekly training, organized exhibition games and training with other universities in Beijing
- Won second place in the Capital University Volleyball League in 2016 and 2017 as a libero.

SKILLS AND INTERESTS

Language: Native Mandarin, Fluent in English (TOEFL 113), Japanese (JLPT level N2-equivalent)
Technical Strengths: Proficient in Python, Pytorch, MATLAB, C, C++, Java, JavaScript, and LaTeX
Interests: Singing (recently ranked top 10 at Peking University for Cantonese singing), Reading (especially historical reviews, philosophy, and psychology), snowboarding, and volleyball