

WENQIAN YE

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EDUCATION

New York University

Master of Science in Computer Science

New York, NY

Sept. 2020 – May 2022

University of Illinois Urbana-Champaign

Bachelor of Science in Mathematics, Minor in CS and ECE

Champaign, IL

Sept. 2017 – May 2020

University of California, Berkeley

Summer Visiting Student

Berkeley, CA

May. 2016 – Aug. 2016

SELECTED PUBLICATIONS

(* indicates co-first authors)

Xu Cao*, **Wenqian Ye***, Elena Sizikova, Kenny Moise, Megan Coffee. Masked Domain Adaptation (MDA): Lipschitz Regularized Masked Self-supervised Learning for Chest X-ray Domain Adaptation. *Under review at The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.

Xu Cao*, **Wenqian Ye***, Elena Sizikova, Xue Bai, Megan Coffee, Hongwu Zeng, Jianguo Cao. ViTASD: Robust ViT Baselines for Autism Spectrum Disorder Facial Detection. *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2023.

Wenqian Ye*, Yunsheng Ma*, and Xu Cao. Uncertainty Estimation in Deterministic Vision Transformer. *AAAI Workshop on Uncertainty Reasoning and Quantification in Decision Making (UDM-AAAI)*, 2022.

Guoxuan Li, Songmao Zhang, Jiayi Wei, **Wenqian Ye**. Combining FCA-Map with Representation Learning for Aligning Large Biomedical Ontologies. *International Semantic Web Conference, Workshop on Ontology Matching (ISWC)*, 2021.

Wenqian Ye, Fei Xu, Yaojia Huang, Cassie Huang, Ji A. Adversarial Examples Generation for Reducing Implicit Gender Bias in Pre-trained Models. *ArXiv preprint arXiv:2110.01094*, 2021.

RESEARCH EXPERIENCE

New York University

Courant Institute of Mathematical Sciences

Sept. 2020 – Aug. 2022

- Project: Uncertainty Estimation in Deterministic Vision Transformer
 - * Proposed a regularization method, termed CoBiLiR, to solve the distance-awareness in both aspects of Lipschitzness and Contraction problems. This project was conducted on Prof. Andrew Gordon Wilson's Bayesian Machine Learning course.
 - * Developed a CoBiLiR self-attention based Transformer Gaussian Process (TGP) model, which integrates distance preserving hidden mappings in the transformer blocks via CoBiLiR, and GP as a distance-aware output layer for high quality uncertainty estimation
 - * Conducted experiments on the commonly-used uncertainty benchmarks and demonstrated the superiority of the proposed TGP model in prediction, calibration, and uncertainty estimation with little penalty on time complexity
 - * Completed a co-first author paper accepted at AAAI Workshop on Uncertainty Reasoning and Quantification in Decision Making (UDM-AAAI), 2023
- Project: Masked Domain Adaptation (MDA): Lipschitz Regularized Masked Self-supervised Learning for Chest X-ray Domain Adaptation
 - * Introduced Masked Domain Adaptation (MDA), a novel and robust self-supervised domain adaptation procedure with Lipschitz Regularized Self-Attention (LRSA) module for domain adaptation in chest X-ray image analysis.
 - * Investigated the connection between MDA and inverse problems, and analyze the ability of the LRSA module and masked self-supervised learning strategy to learn the true data distribution.

- * Empirically evaluated MDA on two Tuberculosis classification benchmarks (Montgomery and Shenzhen datasets), and demonstrate state-of-the-art classification results compared to existing self-supervised domain adaptation methods
- Project: ViTASD: Robust ViT Baselines for Autism Spectrum Disorder Facial Detection
 - * Proposed a model employing plain vision transformers to extract features from patients' face images and adopt a lightweight decoder with a Gaussian Process Layer for ASD detection.
 - * Demonstrated that ViTASD can distill knowledge from larger structures to match performance in smaller ones. Introduced Knowledge Distillation loss on both the feature attention maps and classification logits.
 - * Showed that pediatric ASD can be formulated as a facial image classification problem using a ViT, which achieves state-of-the-art performance in both accuracy and AUROC, while generating attention maps consistent with distinguishable ASD features

Chinese Academy of Sciences

Jun. 2021 – Aug. 2021

Academy of Mathematics and Systems Science

- Project: Combining FCA-Map with Representation Learning for Aligning Large Biomedical Ontologies
 - * Developed FCA-Map to utilize the Formal Concept Analysis (FCA) formalism for aligning ontologies in an incremental way.
 - * Combined FCA-Map with the representation learning technique Siamese BERT so as to take advantage of the semantic representation in numerical latent space.
 - * Evaluated our method on the OAEI 2020 LargeBio small version tasks. Our method obtains the highest recall and F-measure for FMA-NCI (92.3% and 93.9%) and FMA-SNOMED (83.1% and 87.4%)

TEACHING EXPERIENCE

CSCI-GA. 2590 Natural Language Processing

Sept. 2021 – Dec. 2021

Graduate Teaching Assistant, New York University

Instructor: Prof. He He

- Graded the written assignments, exams and final projects. Set up the autograder for code assignments.
- Held the 1 hour Q & A section during weekly office hours.
- Answered questions and provide guidelines for students on the CampusWire forum

WORKING EXPERIENCE

Cirrus Logic Inc.

Jul. 2022 – Now

Software Engineer

Austin, TX

- Conduct Embedded software validation and testing for audio and haptics application – unit test design, automation, analysis, and report.
- Work on internal and customer-facing UI design and implementation System level testing for components including device driver, firmware, UI Software test automation.
- Implement DSP algorithm prototype in Python/Matlab and fixed-point firmware in C/C++.

LiveSensus

Jan. 2019 – May 2020

Co-founder

Champaign, IL

- Built a machine learning model and open-sourced dataset consisting of 30 hours of audio labeled with MOS scores for quality estimation during Vo-IP.
- Designed and developed both simulators to re-create quality degradation in videos and audios for dataset and survey launched on AWS and LiveSensus website.
- Collaborated with four other founders, Professor Sanjay Patel and a leading live streaming company, five founders selected from 40 students under *Alchemy Foundry* at UIUC *Coordinated Science Laboratory*(CSL).

SELECTED GRADUATE COURSES

Foundations of Machine Learning , New York University	Spring 2022
Convex and Non-Smooth Optimization , New York University	Spring 2022
Mathematics of Deep Learning , New York University	Spring 2022
Deep Reinforcement Learning , New York University	Fall 2021
Graphics Processing Units (GPUs) , New York University	Fall 2021
Bayesian Machine Learning , New York University	Fall 2021
Advanced Machine Learning , New York University	Spring 2021
Natural Language Processing , New York University	Fall 2020
Machine Learning , University of Illinois Urbana-Champaign	Spring 2020
Distributed System , University of Illinois Urbana-Champaign	Spring 2020
Abstract Algebra , University of Illinois Urbana-Champaign	Fall 2019
Graph Theory , University of Illinois Urbana-Champaign	Fall 2019

ACADEMIC SERVICE

Volunteer of AAAI 2023
Reviewer of ICASSP 2023, AAAI 2023, ICML 2022

ACADEMIC SOCIETY AFFILIATIONS

Member of <i>IEEE Signal Processing Society (SPS)</i>	2023 – Present
Member of <i>Association for the Advancement of Artificial Intelligence (AAAI)</i>	2022 – Present
Member of <i>Association for Computing Machinery (ACM)</i>	2022 – Present
ACL Year-Round Mentorship Program	2021 – Present
Member of <i>Institute of Electrical and Electronics Engineers (IEEE)</i>	2018 – Present

TECHNICAL SKILLS

Programming Languages: Python, C/C++, R, MATLAB, Golang, \LaTeX
Libraries: PyTorch/TensorFlow, PyTorch Lightning, Huggingface, Scikit-learn
Others: AWS, CUDA, MySQL, Git, Jenkins