WENQIAN YE

571-519-9957 | wy2029@nyu.edu | wenqian-ye.github.io | linkedin.com/in/wenqian-yeh

EDUCATION

New York University New York, NY
Master of Science in Computer Science Sept. 2020 – May 2022

University of Illinois Urbana-Champaign Champaign, IL
Bachelor of Science in Mathematics and Computer Science Sept. 2017 – May 2020

University of California, Berkeley Berkeley, CA
Summer Visiting Student May. 2016 – Aug. 2016

SELECTED PUBLICATIONS

(* indicates co-first authors)

Wenqian Ye*, Xu Cao*, 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, Kun Tang, Zhipeng Cao, Tong Zhou, Erlong Li, Ao Liu, Shengtao Zou, Shuqi Mei, **Wenqian Ye**, Yunsheng Ma, Elena Sizikova, Chao Zheng. Bird's-Eye-View Traffic Scene Representation Learning via Channel Masked Autoencoder. *Under review at The IEEE International Conference on Robotics and Automation* (ICRA), 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. *Under review at 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. *In 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 Sept. 2020 – Aug. 2022
Courant Institute of Mathematical Sciences

- 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

Embedded 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

Reviewer of *International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2023*

Reviewer of *The AAAI Conference on Artificial Intelligence (AAAI), 2023*

Reviewer of *International Conference on Machine Learning (ICML), 2022*

Academic Society Affiliations

Member of *Association for the Advancement of Artificial Intelligence (AAAI)*	2022 – Present
Member of *Association for Computing Machinery (ACM)*	2022 – Present
ACL Year-Round Mentorship Program	2021 – Present
Member of *Institute of Electrical and Electronics Engineers (IEEE)*	2018 – Present

Technical Skills

Programming Languages: Python, C/C++, R, MATLAB, Golang, LaTeX

Libraries: PyTorch, PyTorch Lightening, Huggingface, Scikit-learn

Others: AWS, CUDA, MySQL, Git, Jenkins