Yiyang Liu

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RESEARCH INTERESTS

- Large Language Models (LLMs), Generative AI, Multi-modal Learning
- Causal Inference, Bayesian Networks, Probabilistic Modeling
- Semantic Communication, Root Cause Analysis in Distributed Systems, AI4Science

EDUCATION

University of Toronto Sep 2024 - Jun 2026 (Anticipated)

Master of Engineering, Electrical & Computer Engineering, GPA: 3.85/4.0

- Thesis: LLMs with Causal Inference with *Prof. Jacobsen, Hans-Arno.*
- Core courses: Deep Learning(A+), Rust(A), GenAI

University of Nottingham Sep 2020 - Jul 2024

Bachelor of Engineering, Electrical & Electronic Engineering, GPA: 3.82/4.0 (Top 5%)

- Thesis: ML based Speech Emotion Recognition with *Prof. Sherif Welsen.*[paper3]

RESEARCH EXPERIENCE

University of Toronto, AIMMLab May 2025 - Present

Research Intern with Prof. Jude Kong

- Leding the design of a LLMs-based closed-loop auto-tuning system for topic modeling.

University of Toronto & Camh May 2025 - Present

Research Assistant, Supervised by Prof. Deepa Kundur w/ Dr. Peter Szatmari

- Research on transformer-based modeling and explainability techniques for early prediction of adolescent depression relapse.

University of Nottingham Feb 2025 - Jun 2025

Research Intern with Prof. Chu Zheng, [paper drafting]

- Developed a Transformer-based semantic communication framework that integrates multi-modal feature extraction, enhancing transmission efficiency while preserving semantic integrity.

University of Nottingham & Hwa Mei Hospital University of Chinese Academy of Sciences Apr 2022 - Jun 2022

Research Student with Prof. Ying Weng

- Designed an augmented reality (AR) game for stroke rehabilitation.
- Conducted gait analysis on data from 23 stroke patients and 100 healthy controls, revealing that improper foot positioning and atypical leg/hip joint moments strongly correlate with fall risk.

University of Nottingham & Ningbo Institute of Material Technology and Engineering [paper1][paper2] May 2021 - Aug 2021

Research Student with Prof. Tao Wu

- Performed data analysis and interpretation for evaluating the catalytic performance of Co_3O_4@S1/SiC foam in bio-isopropanol dehydration, achieving a 90% conversion rate at 121°C—63°C lower than conventional heatingwhile enhancing selectivity to 98.8%.
- Assisted in manuscript revision and refinement.

SELECTED PROJECT

University of Toronto Mar 2025 - May 2025
title: Retrieval-Augmented Generation with Adaptive Chunking

- Proposed a two-stage chunking method for RAG that outperformed fixed-size baselines, with Sentence Window best overall and Proposition Chunking better for short questions.

PUBLICATIONS

Yiyang Liu, Sherif Welsen. "Decoding Digital Emotions: Advancing Online Learning with Speech-Emotion Recognition Systems." *Proceedings of the 4th Asia Education Technology Symposium.* [paper3]

Jianwen Zhang, Dawei Lan, **Yiyang Liu**, Tao Wu, "Rational design of structured Co_3O_4@S1/SiC foam catalyst for microwave-assisted highly efficient conversion of bio-isopropanol to green propylene," *Journal of Cleaner Production*, 2024. [paper2]

Jianwen Zhang, Chenxi Wang, **Yiyang Liu**, Tao Wu, "Microwave-assisted Isopropanol-to-Propylene Process with A Structured Co3O4@silicalite-1/SiC Foam Catalyst," *Energy Proceedings*, 2023. [paper1]

AWARDS AND FELLOWSHIPS

University of Nottingham, Outstanding Graduate	Jun 2024
University of Nottingham, Provost's Scholarship ($3,000)	Dec 2023
Zhejiang Provincial Scholarship ($1,200)	Nov 2023
National Third Prize, "Weilai Cup" Formula Student China	Dec 2021

TEACHING EXPERIENCE

University of Nottingham
Teaching Assistant

- Artificial Intelligence — Winter 2024
- Applied Electrical and Electronic Engineering: Construction Project — Fall 2024

EXTRA-CURRICULARS

University of Nottingham Formula Student Racing Team Sep 2020 - Jul 2023
Electrical team member and leader

University of Nottingham Science & Engineering Student Association Sep 2021 - Jul 2022
IET Chapter director

SKILLS

Programming: Python, PyTorch, TensorFlow, MATLAB/Simulink, C, C++, Rust, ROS, SQL

Engineering: Power electronics, Control theory, PCB design, Renewable energy, Semiconductor devices, Signal processing, Communications

Languages: English (Professional); Mandarin (Native).

Hobbies: Piano (China Musicians Association, level 10); Professional Badminton and Squash player (Varsity team member,2022-2024), Ski (Level 2); Calligraphy (level-9).

Strengths: Strong self-management, patience, analytical thinking and creative problem-solving skills