Yu-Hsiang **Wang**

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Education

National Taiwan University   *Taipei, Taiwan*

B.S. IN ELECTRICAL ENGINEERING   *Sep. 2019 - Present*

- **GPA :** overall: 4.09/4.30, major: 4.12/4.30
- **Honors** : Dean's List Award 2020 Fall (Top 5% of students)
- **Selected Courses :** Data Structure, Algorithms, Machine Learning*, Reinforcement Learning*, Financial Technology*, Computer Architecture, Intro. to Computer, Computer Programming, Linear Algebra, Discrete Mathematics, Signals and Systems, Intro. to Digital Speech Processing, Embedded System, Networking and Multimedia   ** denotes graduate-level*

Research Experience

Computational Machine Learning Lab   *UCLA*

RESEARCH ASSISTANT, ADVISOR: PROF. CHO-JUI HSIEH   *Jun. 2023 - Present*

- Proposed **a concept-level uncertainty framework for Large Language Models (LLMs)**.
- Utilized GPT-3.5 to extract key concepts through the application of few-shot examples, while also evaluating uncertainty by quantifying the variance of concept scores using a zero-shot classifier pretrained on the MNLI dataset.
- Achieved an AUROC of 0.81 on Wiki-QA dataset in hallucination detection tasks, **outperforming the baseline approach by a factor of 4.7x.**

interdisciplinary Data Science and Signal Processing Lab   *National Taiwan University*

RESEARCH ASSISTANT, ADVISOR: PROF. CHE LIN   *Sep. 2022 - Present*

- Proposed a heterogeneous graph neural network (HGNN) framework integrating a type-aware edge predictor and a feature classifier to capture the heterogeneity of edges and optimize the embedding in the shared feature space.
- Achieved **SOTA performance** with an F1-score of 0.94 on the ACM dataset, **outperforming benchmark models by 3%** in heterogeneous node classification tasks.

Computational Finance and Data Analytics Lab   *Academia Sinica*

RESEARCH ASSISTANT, ADVISOR: PROF. CHUAN-JU WANG   *Oct. 2021 - Feb. 2023*

- Collaborated with the streaming company KKStream with the aim of constructing a comprehensive and extensive knowledge graph.
- Proposed an unsupervised entity alignment algorithm that leverages pretrained Sentence BERT and neighbor information to determine node similarity across diverse KGs.
- Achieved an F1-score of 0.881 on the DWY15k dataset and 0.58 on KKStream's proprietary dataset, marking a **37% performance improvement**.

Work Experience

CMoney   *Taipei, Taiwan*

AI ENGINEER INTERN, SUPERVISOR: DR. JASON CHOU   *Jun. 2022 - Jun. 2023*

- Developed an explainable recommendation system based on knowledge graphs and graph attention networks to implement personalized push notification for the most popular stock forum in Taiwan.
- Designed **type-aware attention mechanism** to determine the edge weights based on the representation of users and relations.
- Achieved an 8.53% click-through rate in A/B testing, indicating an impressive **3.3x performance enhancement**.

TechInvest Ltd.   *Taipei, Taiwan*

CO-FOUNDER & CHIEF OPERATING OFFICER   *Nov. 2021 - June 2022*

- We were committed to invest in startups by providing technical consultancy instead of traditional financial capital. We aim to help startups without technical background connect with suitable software outsourcing partners.
- I engaged in business development, and had successfully established partnerships with companies in various industries.
- We were admitted to the **accelerator program** hosted by NTU TEC.

Publication

[1] **Yu-Hsiang Wang**, Andrew Bai, Che-Ping Tsai, and Cho-Jui Hsieh. "Concept-level Uncertainty for Large Language Models". *Prepare to submit to The 62nd Annual Meeting of the Association for Computational Linguistics (ACL 2024)*.

[2] Ming-Yi Hong, You-Chen Teng, **Yu-Hsiang Wang**, Chih-Yu Wang, and Che Lin. "THeGAE: Semi-Supervised Type-Aware Heterogeneous Graph Autoencoder Framework". *Not submitted*.

Honors & Awards

2023	**Research Grant for College Students**, National Science and Technology Council (Taiwan)	*July 2023 - Feb 2024*
2023	**Top-three rank in the pitch competition**, Stanford ASES Summit	*April, 2023*
2021	**Top Tier Team Ranking**, NTU Creativity and Entrepreneurship Program	*Fall 2021*
2020	**Dean's Award - for top 5% students**, Electrical Engineering Dept. at NTU	*Fall 2020*

Selected Projects

Enhanced Explainable Recommendation System
National Taiwan University

COURSE FINAL PROJECT OF FINANCIAL TECHNOLOGY
Fall 2022

- Developed a framework for re-ranking recommendation lists by leveraging explanation scores.
- Proposed and implemented three distinct aggregation functions to compute explanation scores based on edge weights of the graph neural networks (GNN).
- Achieved a 46.7% improvement in NDCG on the Amazon-book dataset.
- Achieved **2nd place** out of 7 teams in the final project competition.

Motion Detect LED Bike Vest
National Taiwan University

COURSE FINAL PROJECT OF EMBEDDED SYSTEM LAB
Fall 2021

- Designed and implemented a framework utilizing STM32 and Raspberry Pi to control an LED Vest based on detected motion.
- Collected training data through an accelerometer on the STM32 board.
- Designed and trained a Deep Neural Network model using the CMSIS-NN framework, and successfully deployed it on an STM32 board through quantization.
- Established communication between STM32 and Raspberry Pi through Bluetooth Low Energy (BLE).

Extracurricular Activities

Stanford ASES (Affiliated Stanford Entrepreneurial Students) Summit
Stanford University

DELEGATE OF 2023
Apr. 2023

- Selected to be **the only Taiwanese representative** among the top 24 student entrepreneurs worldwide to participate in the ASES Summit held at Stanford University.
- Presented a novel business model related to the Asia daigou market to the VC panel and achieved a **top-three rank in the pitch competition**.

Creativity and Entrepreneurship Program
National Taiwan University

STUDENTS
Sep. 2021 - June. 2022

- Completed 15 credits of coursework on venture capital, business management, and entrepreneurship.
- Represented my team in the pitch competition and achieved a **top-tier team ranking** among 10 competing teams.

NTU Pop Music Club
National Taiwan University

EVENTS COORDINATOR
Sep. 2020 - Aug. 2021

- Organized diverse events for club members, including the 2020 NTUPM Week, where I led a team of more than **40 participants** and engaged with **1,000+ audience**.

NTUEE Basketball Team
National Taiwan University

FORMER TEAM MEMBER
Sep. 2019 - Aug. 2020

- Achieved **2nd place** for NTU College Freshmen's Cup basketball tournament.

Skills

Programming	Python (PyTorch), C/C++, Verilog, MATLAB
Others	Linux, Git, mlflow