

# Yu-Hsiang Wang

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## Education

### National Taiwan University

Taipei, Taiwan

B.S. IN ELECTRICAL ENGINEERING

Sep. 2019 - Jan. 2024

- **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 - Jan. 2024

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

|                    |                                          |
|--------------------|------------------------------------------|
| <b>Programming</b> | Python (PyTorch), C/C++, Verilog, MATLAB |
| <b>Others</b>      | Linux, Git, mlflow                       |