

Kuo-Han Hung

☎ +886-952663269 | ✉ khhung906@gmail.com | 🏠 khhung-906.github.io | 🎓 Kuo-Han-Hung

Education

National Taiwan University (NTU)

Taipei, Taiwan

B.S. IN COMPUTER SCIENCE AND INFORMATION ENGINEERING

Sept. 2020 – Dec. 2024 (expected)

- GPA: **4.24/4.3** overall, **4.27/4.3** in major; Ranking: **5/187 (top 2.6%)**.
- Awards: **Bachelor Thesis Dean's Award**, 3 times Dean's List Awards, 2 times Presidential Awards.
- Relevant Courses: Foundations of AI, Machine Learning*, Applied Deep Learning*, Computer Vision*, Reinforcement Learning*, Security and Privacy of ML*, Calculus, Linear Algebra, Probability (*graduate level).

University of California, Berkeley

California, USA

SUMMER SESSION PROGRAM IN THE DEPT. OF EECS

June 2022 – Aug. 2022

- Course: CS161 Computer Security (GPA: 4.0/4.0).

Research Experience

Robot Learning Lab

Taipei, Taiwan

UNDERGRADUATE RESEARCHER, ADVISOR: PROF. SHAO-HUA SUN

Oct. 2024 – Present

- Researching on *task-relevant representation learning for robotics*. (ongoing)
 - Developing a language-based visual encoder that generates embeddings based on the task's focus.

IBM Thomas J. Watson Research Center

New York, USA

RESEARCH INTERN, ADVISOR: DR. PIN-YU CHEN

June 2024 – Sept. 2024

- Researched on *prompt injection detection for LLM agent using attention*. [\[under review\]](#)
 - Explored prompt injection attacks using explainable AI by analyzing changes in attention patterns.
 - Developed an attention-based detector with a 31% AUROC improvement over training-free methods.

Communication and Multimedia Lab

Taipei, Taiwan

UNDERGRADUATE RESEARCHER, ADVISOR: PROF. WINSTON H. HSU & PROF. YI-TING CHEN

Feb. 2022 – June 2024

- Researched on *vision-instruction correlation rewards for long-horizon manipulation*. [\[ICMLW' 24\]](#)
 - Developed a hierarchical reward model using large language models and vision language models.
 - Outperformed the previous best method in long-horizon manipulation with a 43% higher success rate.
- Researched on *adaptable error detection for few-shot imitation policy*. [\[NeurIPS' 24\]](#)
 - Designed novel learning objectives that enabled the extraction of policy features to detect errors.
 - Achieved top performance in 17 out of 21 testing cases compared to strong baselines.

Machine Intelligence and Understanding Lab

Taipei, Taiwan

UNDERGRADUATE RESEARCHER, ADVISOR: PROF. YUN-NUNG CHEN

Feb. 2022 – June 2024

- Benchmarked *multi-source retrieval and reasoning in visual question answering*. [\[under review\]](#)
- Researched on *open-domain conversational questions, answering using historical answers*. [\[AAACL' 22\]](#)
 - Employed knowledge distillation to enhance the efficacy of retrieving passages using historical replies.
 - Achieved state-of-the-art performance in open-domain conversational retrieval with 77.9 (R@5).

Selected Publications (*co-authorship)

- [1] **K. H. Hung***, P. C. Lo*, J. F. Yeh*, H. Y. Hsu, Y. T. Chen, and W. H. Hsu, "VICtoR: Learning Hierarchical Vision-Instruction Correlation Rewards for Long-horizon Manipulation." The 41st International Conference on Machine Learning (ICML) ARLET Workshop, 2024. [\[PDF\]](#)
- [2] J. F. Yeh, **K. H. Hung***, P. C. Lo*, C. M. Chung, T. H. Wu, H. T. Su, Y. T. Chen, and W. H. Hsu, "AED: Adaptable Error Detection for Few-shot Imitation Policy." The 38th Conference on Neural Information Processing Systems (NeurIPS), 2024. [\[PDF\]](#)
- [3] **K. H. Hung**, C. Y. Ko, A. Rawat, I. H. Chung, W. H. Hsu, and P. Y. Chen, "Attention Tracker: Detecting Prompt Injection Attacks in LLMs." Preprint. [\[PDF\]](#)
- [4] **K. H. Hung**, C. Zhang, and D. Yankov, "Customizable Routing with Learning from Past Recommendations." The 32nd International Conference on Advances in Geographic Information Systems (SIGSPATIAL), 2024. [\[PDF\]](#)
- [5] H. C. Fang*, **K. H. Hung***, C. W. Huang, and Y. N. Chen, "Open-Domain Conversational Question Answering with Historical Answers." The 2nd Asian Chapter of the Association for Computational Linguistics (AAACL), 2022. [\[PDF\]](#)

Work Experience

Microsoft, Bing Team

APPLIED SCIENTIST INTERN

Remote (team in California, USA)

July 2023 – June 2024

- Integrated Bing Maps with Microsoft Copilot to create an enriched experience for conversational map queries.
- Developed a novel pathfinding algorithm that learns from history, achieving a 10x speedup. [\[SIGSPATIAL' 24\]](#)
- Invented and evaluated a context-aware map search system using LLMs. [\[SIGSPATIAL' 24\]](#)

Cinnamon AI

DEEP LEARNING INTERN

Taipei, Taiwan

June 2022 – Aug. 2022

- Developed and implemented the first image driven recipe retrieval model with adaptable ingredients, along with a cross modal retrieval system featuring a vision-ingredients seq2seq architecture.

Courtero

FOUNDING MEMBER & FULL-STACK DEVELOPER

Remote (team in USA)

Jan. 2022 – June 2022

- Developed map and rating systems for the Courtero app using React Native and Firebase.
- Partnered with students from Harvard and UIUC, gaining acceptance into the Harvard Innovation Labs.

Honors & Awards

Student Research Scholarship , issued by Taiwan National Science Council	Sept. 2024
Lin Hsiung Chen Memorial Scholarship (for top 1 CS student)	Nov. 2023
Jason International Fund Scholarship , issued by Acer Inc.	Sept. 2022
Dean's Award (for top two theses in EECS dept.), NTU Bachelor's Thesis Award	June 2024
Presidential Award/Dean's List (for top 2%/5% students), NTU	Fall'22, '23; Spring'21, '22, '23
Second prize , NTU CSIE Undergraduate Thesis Exhibition	June 2023
Creativity and Entrepreneurship Excellence Award , NTU D-school	June 2023
Honorable Award , NTU CSIE Undergraduate Thesis Exhibition	June 2022
Special Award (for top 5/300+ teams), LINE Fresh Hackathon	Dec. 2021

Leadership and Activities

Creativity and Entrepreneurship Program, NTU D-School

TEAM LEADER

Taipei, Taiwan

Sept. 2022 – June 2023

- Developed and presented detailed business plans for a startup specializing in AI-driven recruitment solutions, incorporating market analysis, financial projections, and go-to-market strategies.
- Awarded the Excellence Award (top 3 out of 10+ teams) in the 2023 class of D-School.

NTU Google Developer Student Club

CO-FOUNDER & ACADEMIC INSTRUCTOR

Taipei, Taiwan

Aug. 2022 – June 2023

- Expanded the club from 3 to over 70 members by planning, structuring operations, and designing coursework.
- Initiated and led a 20-person study group to develop AI kidney disease management, achieving first place in Taiwan in the Google Solution Challenge.

Selected Projects

VULNERABILITIES IN VLM-POWERED POLICIES [\[Slide\]](#)

- Developed a text and image-based adversarial attack method to manipulate embodied AI behavior, achieving a 40% increase in targeted attack success on VLM-powered policy networks.

ZERO-SHOT TEXT BEHAVIOR RETRIEVAL [\[Report\]](#)

- Proposed a zero-shot behavior retrieval system using text-guided object detection and CLIP to retrieve task-relevant data from offline datasets, enabling policy training without expert data.

Teaching Experience

TEACHER ASSISTANT, CSIE1000 INTRODUCTION TO COMPUTER SCIENCE

Sept. 2024 – Dec. 2024

- Developed assignments and led weekly TA sessions to reinforce students' understanding across major CS fields.

TEACHER ASSISTANT, CSIE5043 MACHINE LEARNING (GRADUATE LEVEL)

Jan. 2023 – June 2023

- Designed and implemented advanced machine learning assignments on VC dimension and SVM.
- Organized a final project competition focused on music recommendation systems using tabular data.