

Kuo-Han Hung

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Education

National Taiwan University (NTU)

Taipei, Taiwan

B.S. IN COMPUTER SCIENCE AND INFORMATION ENGINEERING

Sept. 2020 - Dec. 2024 (expected)

- Overall GPA: 4.24/4.3; Major GPA: 4.27/4.3; 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

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.
- [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.
- [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.
- [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.
- [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.

Work Experience

Microsoft, Bing Team

Remote (team in California, USA)

APPLIED SCIENTIST INTERN

July 2023 – June 2024

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

Cinnamon AI

Taipei, Taiwan

DEEP LEARNING INTERN

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

Remote (team in USA)

FULL-STACK DEVELOPER & FOUNDING MEMBER

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 and Awards

Dean's Award (for top two theses in EECS department), 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
Lin Hsiung Chen Memorial Scholarship (top scholarship in Taiwan)	Nov. 2023
Second prize , NTU CSIE Undergraduate Thesis Exhibition	June 2023
Creativity and Entrepreneurship Excellence Award , NTU D-school	June 2023
Charity Trust Jason International Fund Scholarship , issued by Acer Taiwan	Sept. 2022
Honorable Award , NTU CSIE Undergraduate Thesis Exhibition	June 2022
Special Award (top 5/300+ teams), LINE Fresh Hackathon	Dec. 2021

Leadership and Activities

Creativity and Entrepreneurship Program, NTU D-School

Taipei, Taiwan

TEAM LEADER

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

Taipei, Taiwan

CO-FOUNDER & ACADEMIC INSTRUCTOR

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

- Designed eight homework across major fields in computer science to help students reinforce weak concepts.
- Led a weekly TA sessions to address student questions on lectures and assignments.

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.