Ho Yin (Sam) Ng

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SUMMARY

PhD student specializing in the intersection of HCI and AI with 13 publications. My research involves prototyping interactive systems and applying generative AI to new domains, with a current focus on using multimodal models to mitigate misinformation in data visualizations.

EDUCATION

The Pennsylvania State University (Penn State), University Park, PA

Ph.D. in *Informatics* — Aug. 25 – May 29 (Expected)

M.S. in *Informatics* — Aug. 23 – Dec. 24

Advisor: Dr. Ting-Hao 'Kenneth' Huang

Thesis: *Understanding Researchers' Behaviors and Design Considerations for AI-Assisted Scientific Caption Writing*.

National Taipei University of Technology (Taipei Tech), Taipei, Taiwan

M.Des. in *Interaction Design* — Sep. 21 – Aug. 23

Advisor: Dr. Ping-Hsuan Han

Thesis: *MovableBlocks: Exploring Dynamic Furniture for Whole-body Interaction in Room-scale Substitutional Reality*.

Hong Kong University of Science and Technology (HKUST), Hong Kong

B.B.A. in *Information Systems* & *Professional Accounting* — Sep. 11 – May 16

Minor: *Design* & *Social Science*

Outbound Exchange: Tsinghua University, Beijing, China (Fall 2014)

SKILLS

- **Programming Languages**: Python, Java, C#
- **AI / Machine Learning:** Data Curation, LLM Benchmarking, Generative AI (GPT, Llama)
- **AR/VR Development:** Unity, Arduino

SELECTED PUBLICATIONS

[P.13] **Ho Yin Sam Ng**, Ting-Yao Hsu, Aashish Anantha Ramakrishnan, Branislav Kevton, Nedim Lipka, Franck Dernoncourt, Dongwon Lee, Tong Yu, Sungchul Kim, Ryan A Rossi, and Ting-Hao Kenneth Huang. 2025. *LaMP-Cap: Personalized Figure Caption Generation With Multimodal Figure Profiles*. To appear in Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing (**EMNLP 2025**).

[P.9] **Ho Yin (Sam) Ng**, Ting-Yao Hsu, Ting-Yao Hsu, Jiyoo Min, Sungchul Kim, Ryan A. Rossi, Tong Yu, Hyunggu Jung, Ting-Hao 'Kenneth' Huang. *Understanding How Paper Writers Use AI-Generated Captions in Figure Caption Writing*. In 2nd AI4Research Workshop: Towards a Knowledge-grounded Scientific Research Lifecycle (**AI4Research @ AAAI 2025**).
***Best Paper Award**

[P.7] **Ho Yin Ng**, Zeyu He, Ting-Hao 'Kenneth' Huang. *What Color Scheme is More Effective in Assisting Readers to Locate Information in a Color-Coded Article?* 2024 IEEE Visualization and Visual Analytics (**VIS '24**) (pp. 291-295).

[P.6] Luis Andres Mendez S., **Ho Yin Ng**, Zin Yin Lim, Yi-Jie Lu, Ping-Hsuan Han. *MovableBag: Substitutional Robot for Enhancing Immersive Boxing Training with Encountered-Type Haptic.* SIGGRAPH Asia 2022 XR (**SA '22 XR**). Association for Computing Machinery, New York, NY, USA, Article 10, 1–2.

RESEARCH EXPERIENCE

Graduate Research Assistant | *Crowd-AI Lab,* **The Pennsylvania State University** — Nov. 23 – Present

Project: **AI-Driven Scientific Caption Generation**

- Led the development of a novel dataset for personalized caption generation, from data curation, LLM benchmarking, ablation studies, and validating the model's performance through a human evaluation study (n=10) on caption quality. [P.13]
- Extended an existing design space for AI-assisted writing by conducting a user study (n=18) focused on scientific captions, identifying domain-specific opportunities to improve suggestion quality and efficiency. [P.9]

Project: **Enhancing Text Annotation with Visualization**

- Investigated how to improve information retrieval by leading a controlled experiment (n=32) on color-coded annotations, validating that specific color choices (e.g., yellow) significantly improve readers' detection speed and accuracy. [P.7]

Other Contributions

- Contributed to collaborative projects by assisting with coordinating user studies, data analysis and literature reviews, resulting in several co-authored publications. [P.8, 10, 11]
- Rapidly developed and deployed a public-facing website for the SciCap Challenge, leveraging AI development tools to launch the site on GitHub Pages in three days.

Graduate Research Assistant | *XR Lab,* **National Taipei University of Technology** Dec. 21 – Jul. 23

Project: **Haptic Feedback and Multi-Body Interaction in VR Exergames**

- Assisted in developing interactive VR prototypes for HCI research, including a real-time motor control system integrating Unity3D and Raspberry Pi, to investigate novel haptic feedback for exergame and rehabilitation applications using Arduino, contributing to 7 conference publications. [P.1-6, P.8]
- Presented research findings and interactive prototypes to cumulative audiences of over 100 (including policymakers, visiting academics, and the general public), delivering bilingual (English and Mandarin) demonstrations at conferences and lab events.

PUBLICATIONS

[P.12] **Ho Yin Sam Ng**, Ting-Yao Hsu, Jiyoo Min, Sungchul Kim, Ryan A. Rossi, Tong Yu, Hyunggu Jung, and Ting-Hao Kenneth Huang. 2025. *Understanding Writing Assistants for Scientific Figure Captions: A Thematic Analysis*. In Proceedings of the Fourth Workshop on Intelligent and Interactive Writing Assistants (**In2Writing 2025**), pages 1–10, Albuquerque, New Mexico, US. Association for Computational Linguistics.

[P.11] Ting-Yao (Edward) Hsu, Yi-Li Hsu, Shaurya Rohatgi, Chieh-Yang Huang, **Ho Yin Ng**, Ryan Rossi, Sungchul Kim, Tong Yu, Lun-Wei Ku, Clyde Lee Giles, Ting-Hao 'Kenneth' Huang. (accepted). *Do Large Multimodal Models Solve Caption Generation for Scientific Figure? Lessons Learned from SciCap Challenge 2023*. In Transactions of the ACL (**TACL 2025**): Findings.

[P.10] Zixin Tang, Chieh-Yang Huang, Tsung-Chi Li, **Ho Yin (Sam) Ng**, Hen-Hsen Huang, Ting-Hao 'Kenneth' Huang. *Using Contextually Aligned Online Reviews to Measure LLMs' Performance Disparities Across Language Varieties*. In the 2025 Annual Conference of the Nations of the Americas Chapter of the ACL (**NAACL 2025**)

[P.8] Yu-Hsiang Weng, Ping-Hsuan Han, Kuan Ning Chang, Chi-Yu Lin, Chia-Hui Lin, **Ho Yin Ng**, Chien-Hsing Chou, Wen-Hsin Chiu. *Hit Around: Substitutional Moving Robot for Immersive and Exertion Interaction with Encountered-Type Haptic*. IEEE Transactions on Visualization and Computer Graphics. (**TVCG 2025**) (pp. 3569-3579).

[P.5] **Ho Yin Ng**, Chia-Hui Lin, Zin Yin Lim, Yi-Jie Lu, Chu-Yu Lin, Ping-Hsuan Han. *PressySofties: Explore Multi-player Squeeze Interaction with Conductive Fabric Cubes*. ACM Conference On Computer-Supported Cooperative Work And Social Computing 2022 (**CSCW '22**), Invited Demos.

[P.4] Luis Andres Mendez S., **Ho Yin Ng**, Zin Yin Lim, Yi-Jie Lu, Ping-Hsuan Han. *MovableBag: Integrating Haptics and Visual Feedback on Mobile Devices to Enhance the Virtual Reality Experience of Sport Training*. The 8th Annual Conference of Taiwanese Association of Computer-Human Interaction (**TAICHI '22**), Demos.
***People's Choice Award, 1st Place (among 20 accepted demo papers)**

[P.3] **Ho Yin Ng**, Chia-Hui Lin, Zin Yin Lim, Yi-Jie Lu, Chi-Yu Lin, Ping-Hsuan Han. *PressySofties: Utilize Conductive-Cloth Cube to Explore Squeeze Interaction Among Multi-Users*. The 8th Annual Conference of Taiwanese Association of Computer-Human Interaction (**TAICHI '22**), Demos.
***People's Choice Award, 3rd Place (among 20 accepted demo papers)**

[P.2] Luis Andres Mendez S., **Ho Yin Ng**, Ping-Hsuan Han. *Movablebag: Exploring Asymmetric Interaction for Multi-user Exergame in Extended Reality*. Adjunct Proceedings of the 2022 ACM International Joint Conference on Pervasive and Ubiquitous Computing and the 2022 ACM International Symposium on Wearable Computers (**UbiComp/ISWC 2022 Adjunct: MIMSVAI '22**) (pp. 515-519).
***Best Paper Award (1 out of 8 accepted papers)**

[P.1] Chain Yi Chu, **Ho Yin Ng**, Chia Hui Lin, Ping-Hsuan Han. *PressyCube: An Embeddable Pressure Sensor with Softy Prop for Limb Rehabilitation in Immersive Virtual Reality*. 2022 IEEE International Conference on Multimedia and Expo Workshops (**ICMEW '22**) (pp. 1-1).

PROFESSIONAL EXPERIENCE

Analyst Programmer (Placement Student) | *Global Business Services*, **IBM** Aug. 13 – Jun. 14

- Gathered client feedback during System Integration Testing (SIT) to validate application usability, completing all test cases ahead of schedule.
- Collaborated with a 20-person international team to modernize user-facing applications by contributing to the back-end code migration.