

HUI Gi Wai, Echo 許芷瑋

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PhD Application Microsite: <https://phd-echo-studio-for-narrative-spaces.noseborg.com/>

RESEARCH INTERESTS

- Human–AI interaction
- Long-term memory for LLM agents
- Multi-agent LLM systems
- Information retrieval and retrieval-augmented generation
- Multi-modal large models
- Generative AI for education; intelligent tutoring systems

Current direction: “Knowing When Not to Recall” — memory pacing for LLM agents supporting scent-linked autobiographical memory after acquired smell loss. Extends context-aware pacing from response timing to the timing and explicitness of memory disclosure, using image-cued elicitation and Wizard-of-Oz / scripted-prototype studies.

EDUCATION

MSc, Data Analytics and Artificial Intelligence

2026

Department of Computer Science, Faculty of Science, Hong Kong Baptist University, Hong Kong

cGPA 3.69 / 4.00 · Graduated with Distinction

BA (Hons), Visual Arts (Studio and Media Arts)

2019

Academy of Visual Arts, Hong Kong Baptist University, Hong Kong

cGPA 3.30 / 4.00 · Second Class Honours, Division I

- President’s Honour Roll, Semester 1, 2018–19
- Dean’s List, six semesters, 2014–19
- Exchange semester, Hochschule der Bildenden Künste Saar (HBKsaar), Saarbrücken, Germany [VERIFY DATES]

PUBLICATIONS

Published

Hui, E. G. W., Choy, M. M. T., & Cheung, W. K. W. (2025). MetaClues: Constructivist Learning via Progressive Clues from Generative AI in a Metaverse Environment. In Proceedings of the 2025 International Conference on Metaverse Computing, Networking and Applications (IEEE MetaCom 2025).

Under review

Hui, E. G. W., & Choy, M. M. T. MobiClues: Constructivist Learning through Gamified Discovery and Multi-Agent AI Tutoring. Submitted to the International Conference on Teaching, Assessment, and Learning for Engineers (IEEE TALE 2026).

AWARDS AND HONOURS

Invited Speaker (upcoming), IEEE ICAITE 2026 International Conference on Artificial Intelligence and Teacher Education, Nagasaki, Japan Dec 2026

1st Prize, M+ Museum Hackathon 2020

MI Asia Award for outstanding academic performance, Hong Kong Baptist University 2019

Academy of Visual Arts (AVA) Award, Academy of Visual Arts, HKBU 2019

SELECTED RESEARCH PROJECTS

Hearth — Long-Term Supportive Conversational Agent (prototype)

2024 – present

Independent research prototype · FastAPI, LangGraph, MongoDB, React Native

- Designed and built a year-long prototype investigating how a conversational agent persists user context across sessions, extracting memories asynchronously and resurfacing them in later dialogue.

- Implemented a two-mode memory architecture (PATCH: a single evolving user profile; INSERT: discrete event memories with LLM-based deduplication) over a LangGraph extraction pipeline.
- The system's central limitation — retrieval optimised purely for relevance, with no notion of when a memory should be withheld — motivated the research question now driving my PhD direction: memory pacing and memory retrieval.

Retrieval-Augmented Generation: Embedding Models and Retrieval Quality

2024

Sentence Transformers, RAGAS, vector search

- Investigated how fine-tuning sentence transformer models affects retrieval quality in RAG-based question answering over a corpus of NLP research papers.
- Built the full pipeline: PDF parsing and chunking, domain-specific embedding fine-tuning, vector indexing, and evaluation with InformationRetrievalEvaluator and RAGAS.
- Fine-tuning improved retrieval across Accuracy@1, Recall@10, MRR, NDCG, and MAP.

Meta-Clues — Generative AI and Constructivist Learning in a Metaverse Environment

2025

Peer-reviewed publication, IEEE MetaCom 2025

- Designed the AI-supported learning interaction and connected the system design to constructivist learning theory; contributed to pilot study and evaluation design.
- Integrated generative AI into artifact creation and fusion flows, and helped design the progressive clue-based learning mechanics.
- Framed the system as AI-assisted knowledge construction — AI as a non-prescriptive co-constructor rather than an answer-giver — a stance that carries directly into my current interest in agents that guide without overriding user agency.
- User study with 19 participants. [VERIFY the 84% figure and its measure before citing]

TEACHING EXPERIENCE

Part-time Lecturer (incoming)

from Sep 2026

BA and Science in Arts and Technology, Academy of Visual Arts, Hong Kong Baptist University

Teaching Assistant

Nov 2022 – Mar 2025

Department of Computer Science, Faculty of Science, Hong Kong Baptist University

- Developed teaching materials for undergraduate courses — lesson plans, programming exercises, and assignments — including Python lab materials on AI/ML fundamentals (PyTorch, scikit-learn).
- Automated lab environment testing and grading with Bash/PowerShell and Python, improving time efficiency by approximately 30%.
- Courses supported: COMP3057 Introduction to Artificial Intelligence and Machine Learning; COMP7065 Innovative Laboratory; SCIE1006 Big Data and Smart Technology; COMP1005 Essence of Computing; COMP1015 / COMP2037 Computing for Creatives I and II.

STEM / STEAM Tutor

2020 – 2023

Secondary schools, Hong Kong · Self-employed

- Taught secondary school students creative coding and physical computing: p5.js and Three.js for web interaction, MicroPython/C++ for physical computing, and Python/OpenCV/MediaPipe for body-pose tracking.
- Introduced students to the use of code in creative industries, software art, and new media installation.

RESEARCH AND PROFESSIONAL EXPERIENCE

Research Assistant

Jun 2022 – Oct 2022

School of Creative Arts, Hong Kong Baptist University · Supervisor: Kingsley Ng

- Researched the integration of interactive computer vision (body pose, hand, and face tracking) with computer graphics to develop lesson plans and teaching materials for the BA and Science in Arts and Technology programme.
- Worked within an interdisciplinary team exploring how programming and AI can open new modes of learning in arts and technology.

AI Engineer

Nov 2025 – present

Advanced Technology & Industrial Company Limited, Hong Kong · Python, LangChain, FastAPI, TypeScript

- Building an internal conversational assistant using retrieval-augmented generation and multi-agent orchestration.

- Developing a full-stack product platform covering over three million products.

Software Developer

May 2021 – May 2022

Advanced Technology & Industrial Company Limited, Hong Kong · Vue.js, REST/GraphQL, PostgreSQL

- Developed backend services and integrated internal web tools; contributed to CRM systems (OdoO/PostgreSQL); automated data cleaning and deployment via shell and Python scripting.

Interactive Designer / Front-end Developer

Aug 2020 – May 2021

XCEPT, Hong Kong · Python, OpenCV, Vue.js, Three.js, AWS

- Collaborated on interactive multimedia installations using VR/AR technology, building front-end and 3D WebGL components and deploying to AWS.

Front-end Developer / Creative Technologist

Mar 2020 – Aug 2022

Self-employed · Python, OpenCV, MediaPipe, Three.js, p5.js, C++

- Developed interactive multimedia art installations spanning physical computing, desktop and web applications, live data transmission between multimedia software, and body-pose, hand, and face tracking.
- Built WebGL animation for web applications to deepen audience engagement.

Student Research Assistant

Jul 2018 – Aug 2018

Academy of Visual Arts, Hong Kong Baptist University

- Cleaned and structured over 2,000 photobook records — title, author, publisher, year, and descriptive metadata — to build a database for the photobook collection.

SELECTED EXHIBITIONS

SIGGRAPH Asia 2020, Art Gallery — virtual format, two works peer-reviewed and conditionally accepted; presented 2020

The 7th Taiwan International Video Art Exhibition — ANIMA — Taiwan Contemporary Culture Lab & Hong-gah Museum, Taipei, Taiwan 2020–21

【夜的美術館】2020 TIVA — YU-HSIU Museum of Art, Nantou, Taiwan 2020–21

D-Normal / V-Essay Open Call — Selected Artist, online exhibition, Floating Projects Collective, Hong Kong 2020

After_Mentorship Programme — ACO Art Space, Wan Chai, Hong Kong 2021

Microcosmic Breath 「息微」 — Casphalt, Ching Leung Nunnery, Tuen Mun, Hong Kong 2020

IAM International Art Moves — Pathfinder — Kunstquartier Bethanien, Berlin, Germany 2020

The Haunted — Cookhouse Gallery, Chelsea College of Art, London, United Kingdom 2019

Zone Out — Chung-Ang University Gallery, Seoul, South Korea 2019

Schacht und Heim — Künstlerische Auseinandersetzung mit dem Archiv — Galerie der HBKsaar, Saarbrücken, Germany 2017

Fremd | HBKsaar Rundgang — HBKsaar, Saarbrücken, Germany 2017

Additional group exhibitions in Hong Kong: 出爐 2019 Art Graduates Joint Exhibition (Hong Kong City Hall), AVA Unfolded @ PMQ, HKBU AVA BA Exhibition 2019, Take A Sip 攝一口, Tri-Pho 三個景象.

ARTIST RESIDENCIES

Eaton HK Artist Residency — Hong Kong Apr – Oct 2021

Chelsea Summer Residency — Chelsea College of Arts, University of the Arts London, United Kingdom Sep 2019

SKILLS

- **AI / ML:** PyTorch, scikit-learn, LangChain, LangGraph, retrieval-augmented generation, sentence transformers and embedding fine-tuning, retrieval evaluation (RAGAS), LLM agent architectures.
- **Programming and systems:** Python, JavaScript/TypeScript, C++, FastAPI, Vue.js, React Native, Three.js, p5.js, MongoDB, PostgreSQL, Git, AWS, shell scripting.
- **Creative and interaction technology:** OpenCV, MediaPipe (body-pose, hand, and face tracking), physical computing (MicroPython, Arduino), VR/AR installation, WebGL.
- **Design:** typography, signage and identity, pictogram and information design, poster and book design; Adobe Creative Suite, Figma.
- **Languages:** Cantonese (native), English (fluent), Mandarin (fluent).