

HUI Gi Wai, Echo 許芷瑋

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Selected work: <https://echohui-co-creation.noseborg.com/work>

RESEARCH INTERESTS

- Human–AI interaction and co-creation
- Generative AI for creative tools: image, video, and design
- Controllable generation and creator-facing control mechanisms
- Vision–language and multi-modal large models
- Multi-agent LLM systems; retrieval-augmented generation
- Creative technology and arts–technology pedagogy

Current direction: “Generative AI as Co-Constructor” — feedback and control in human–AI creation tools for visual media. How should a generative system’s interpretive feedback and its fixed/variable controls be designed so that it expands a creator’s space of intent rather than substituting for it, and how should that be evaluated on the creative process rather than only the output? Studied through tool-building and user studies with designers and media artists.

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

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).

SELECTED RESEARCH PROJECTS

MetaClues — Generative AI and Constructivist Learning in a Metaverse Environment

2025

Peer-reviewed publication, IEEE MetaCom 2025

- Designed a generative pipeline combining image-to-text, reasoning-LLM fusion, text-to-image diffusion (Flux) and image-to-3D (Hunyuan3D) into a single creative loop inside a multiplayer virtual campus.
- Designed the multi-faceted relevance metric that rewards imaginative divergence as well as faithful replication — positioning generative AI as a non-prescriptive co-creator rather than an answer-giver.
- Led the interaction design and evaluation design; pilot user study with 19 participants using SUS and TAM instruments plus a framework-specific questionnaire.

MobiClues — Multi-Agent AI Tutoring with Generative Discovery

2026

Under review, IEEE TALE 2026 · FastAPI, LangGraph, multimodal LLM agents

- Designed and prototyped a mobile system pairing generative item creation and fusion with a multi-agent retrieval-augmented tutoring loop, where agents diagnose, scaffold, gate retrieval, and prompt reflection.

- Established an auditable agent architecture in which every pedagogical decision is an explicit, inspectable agent output, enabling interaction-trace analysis.

Modular Vision–Language UI Grounding System

2026

MSc final project · YOLOv8, CLIP ViT-L/14, Qwen2.5-VL-3B, LoRA, Playwright

- Built a three-stage grounding pipeline — class-agnostic YOLOv8 proposal generator, fine-tuned CLIP ViT-L/14 retriever, and a Qwen2.5-VL-3B LoRA grid reranker — designed so that error attribution is stage-wise and measurable rather than opaque.
- Fine-tuning the retriever vision tower lifted hit@20 from 0.214 to 0.554 against a detector oracle ceiling of 0.801; continued LoRA adaptation to an unseen production site lifted hit@1 from 14.8% to 60.7%.
- Diagnosed and resolved catastrophic forgetting during out-of-domain adaptation by oversampling under-represented action classes, preserving general grounding while acquiring site-specific competence.

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 evaluated with InformationRetrievalEvaluator and RAGAS; fine-tuning improved Accuracy@1, Recall@10, MRR, NDCG and MAP.

Hearth — Long-Term 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 context asynchronously and resurfacing it in later dialogue.
- Implemented a two-mode memory architecture (PATCH: a single evolving user profile; INSERT: discrete event records with LLM-based deduplication) over a LangGraph extraction pipeline.

SELECTED EXHIBITIONS

SIGGRAPH Asia 2020, Art Gallery — virtual format, two works peer-reviewed; 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

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

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.

SKILLS

- **AI / ML:** PyTorch, scikit-learn, LoRA / QLoRA fine-tuning, vision-language models (CLIP, Qwen2.5-VL), diffusion and text-to-image pipelines, 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).