CARRIE LAU

PhD Tentative Title: Designing and Evaluating Gen-AI for Cultural Resilience

Expected graduation: 07/2026

Hi! I'm a PhD Researcher in Human-AI Interaction specializing in the design and evaluation of generative AI applications in XR and cultural learning contexts. Experienced in eye-tracking, user-centered design, and mixed-method research. Passionate about crafting inclusive, emotionally resonant AI experiences through rigorous evaluation and cross-functional collaboration.

Skills

- Research
- Product Management
- Agile implementation
- Human-computer interaction
- User-centered design
- Qualitative and Quantitative Analysis
- Start-ups, Growth Hacking

Accreditation

- Certified Professional Scrum Master (PSM I)
- PADI Advanced Open Water Diver

Scholarship

- 2014-2015 | Outstanding HKSAR Government Reaching Out
- 2014-2015 | HKSAR Matching Scholarships Scheme
- 2014-2015 | HKSAR Self-financing Post-secondary Scholarship Scheme

Languages

- Cantonese (Native)
- Mandarin
- English
- German (B2)

Volunteer work

- 2022-2023 | Parkrun Organiser, Prinzenpark Braunschweig

Human-Computer Interaction, LLMs, XR, Cultural Education

Phone: +491789699616

Email: pixidust724@gmail.com

Portfolio: https://www.carrielau.com/

Professional experience

PhD Student Mar 2023 - Current

Technical University of Munich (Germany)

- Working at the Chair of Human-Centered Technologies for Learning
- Research focus: LLM and VR in Education, Embodied Learning Experience, Human-Computer Interaction, Cultural Heritage

Master Thesis Feb 2022 - Sep 2022

Volkswagen AG, Wolfsburg (Germany)

- Identified sleep use cases in autonomous vehicles
- User study to derive an HCI approach to increase occupant comfort

Product Management Internship Mar 2021 - Aug 2021

Robert Bosch GmbH, Abstatt (Germany)

- Work in the area of Chassis System Control Unit (CC/PRM-P2)
- Identification of the unique selling point of the Bosch airbag control unit through technology scouting within the business framework
- Market and competitive analyses for active and passive safety sensors as well as evaluation of the customer landscape

Research Assistant (Student Worker) Sep 2019 - Nov 2022

University of Siegen (Germany)

- Reducing safety-critical problems in control rooms by developing pattern-based wearable assistants
- Promoting digitalization in rural areas (villages in Puderbach)
- Co-designing an internal learning platform for HCI master students and professors, promoting educational exchange

Education

Master of Science, Human Computer Interaction, Grade: 1,2 (Very good) Sep 2019 - Nov 2022

University of Siegen

Project with Bosch in the area of human-machine interface - Implicit nudging for careless driving behavior in autonomous vehicles SAE Level 4, 5

Information Technology and Electrical Engineering (Erasmus), Grade: 1.0 (Very good) Sep 2021 - Dec 2021

University of Oulu, (Finnland)

Courses completed during my Erasmus mobility exchange:

- Natural Language Processing and Text Mining (NLTK, spaCy), VR Systems and People, Introduction to Data Mining (R, Matlab, SQL), Intermediate Course on Business Analytics, Introduction to Deep Learning and Multimodal Data Fusion (Numpy, Pytorch, Python)

CARRIE LAU

Human-Computer Interaction, LLMs, XR, Cultural Education

Publications

Lau, K. H. C., Bozkir, E., Gao, H., & Kasneci, E. (2024). Evaluating Usability and Engagement of Large Language Models in Virtual Reality for Traditional Scottish Curling. arXiv preprint arXiv:2408.09285. - Accepted in **ECCV (AI4DH) 2024**

- [Impact]: One of the first studies to evaluate LLMs in VR cultural learning contexts. Using engagement metrics and interaction log data in VR to assess the usability and emotional resonance of LLM-powered narratives in a niche cultural domain.

Lau, K. H. C., Yun, B., Saruba, S., Bozkir, E., & Kasneci, E. (2024)**.** Wrapped in Anansi's Web: Unweaving the Impacts of Generative-AI Personalization and VR Immersion in Oral Storytelling. arXiv preprint arXiv:2409.16894. - Accepted in **Augmented Humans 2025**

- [Impact]: Investigates how generative AI personalization affects user engagement and cultural-identity perception in VR-based storytelling. Highlights trade-offs between cultural familiarity, immersion, and agency using mixed-methods evaluation (self-reported data and semi-structure interview).

Buldu, K. B., Özdel, S., **Lau, K. H. C**., Wang, M., Saad, D., Schönborn, S., ... & Bozkir, E. (2024). CUIfy the XR: An Open-Source Package to Embed LLM-powered Conversational Agents in XR. arXiv preprint arXiv:2411.04671. - **IEEE AIxVR 2025**

- [Impact]: Developed and released a modular toolkit for embedding LLM-driven dialogue into XR environments. Enables researchers and designers to prototype cultural and educational experiences rapidly.

Bozkir, E., Özdel, S., **Lau, K. H. C.**, Wang, M., Gao, H., & Kasneci, E. (2024, July). Embedding large language models into extended reality: Opportunities and challenges for inclusion, engagement, and privacy. In **Proceedings of the 6th ACM Conference on Conversational User Interfaces** (pp. 1-7).

- [Impact]: Co-authored foundational paper framing the ethical and practical challenges of integrating LLMs into XR environments. Informed future HCI design guidelines for culturally inclusive conversational agents.

Kasneci, E., Gao, H., Ozdel, S., Maquiling, V., Thaqi, E., **Lau, C**., ... & Bozkir, E. (2024). Introduction to Eye Tracking: A Hands-On Tutorial for Students and Practitioners. arXiv preprint arXiv:2404.15435.

- [Impact]: Contributed to an open-access tutorial aimed at lowering the barrier to entry for researchers and students applying eye-tracking in UX and HCI research.