Midlands4Cities Doctoral Training Partnership
Birmingham Coventry Leicester Nottingham

Arts and Humanities Research Council

M4C Collaborative Doctoral Award (CDA)

Project Title				
Frameworks of transdisciplinary practice for the creation of interactive and immersive XR experiences, incorporating generative AI and real-time data sources				
LEAD INSTITUTION				
Name of HEI institution	De Montfort University			
Lead regional city	Birmingham ☐	Coventry ☐	Leicester ☒	Nottingham ☐
PARTNER ORGANISATION				
Name of organisation	Holovis			
URL for organisation website	https://www.holovis.com			

THE RESEARCH PROJECT

Project:

Working with Holovis, a global innovator and market leader in immersive and multi-sensory XR solutions for industry, education and entertainment, this research will explore the creation of interactive and immersive environments which integrate generative artificial intelligence (AI) and real-time data sources.

This practice-based project aims to produce new knowledge through the creation of interactive XR immersive experiences which incorporate generative AI and real-time data sources, and by doing so will propose innovative frameworks of transdisciplinary practice for the creation of interactive and immersive environments. It builds on a body of research undertaken in the past decade (to which DMU's Institute of Creative Technologies [IOCT] researchers have contributed prominently), including practice research conducted through the UKRI Audiences of the Future and Creative Industries Clusters programmes (2018–2022 and 2018–2023 respectively) and ACE's Creative XR programme (2017–2021). Whereas this initial research focused on the integration of immersive technologies within creative practice (Intson 2022; O'Dwyer, Young & Smolic 2022; Smith 2018; Smith 2022), and the application of emerging technologies through creative AI (Machado, Romero & Greenfield 2021; Vear & Poltronieri 2022), the CDA project brings together both areas to create new knowledge related to the creation of interactive and immersive XR experience incorporating generative AI and real-time data. In doing so it will develop innovative transdisciplinary methodologies and frameworks of practice for more personalised audience/user experiences.

This CDA sits firmly in the field of createch, where creative practice and technological innovation combine to create new cultural experiences. Technology in this instance is a tool (or collaborator) for creative practice, and the PhD outputs will centre around the creation of a number of interactive XR immersive experiences incorporating generative AI and real-time data. The integration of generative AI techniques and real-time data has the capacity to revolutionise how individuals interact with XR immersive experiences, creating environments which are more engaging, inclusive and responsive – with transformational potential across sectors including museums and heritage, visual art, performance and filmmaking.

Key research questions:

1. How can generative AI algorithms be utilised effectively to create XR immersive and interactive experiences?
2. In what ways can generative AI-driven content enhance user experience, engagement, and satisfaction within interactive and immersive XR experiences?
3. How can real-time data be integrated with generative AI algorithms to create dynamic and adaptable XR immersive environments?
4. What are the experiential and ethical implications and industry applications of generative AI-driven content in interactive XR immersive experiences?

While the specific interactive and immersive XR experiences to be created through this PhD will depend on the practice of the researcher, the CDA will specifically support the development of Holovis' entertainment/cultural portfolio, through the development of new interactive and immersive XR frameworks which incorporate generative AI and real-time data sources.

Process:

The research will be conducted within the framework of a practice-based PhD, where the investigation is situated in, with, or through practice. The PhD will combine qualitative and quantitative techniques, involving the creation of prototypes and user-testing. This hands-on methodology enables iterative design improvements and direct engagement with end-users, to include user feedback, observations and surveys. The involvement of users and stakeholders will ensure that the project outcomes are practicable and directly applicable to real-world scenarios. Prototypes of interactive and digital immersive experiences will be developed, which will serve as testbeds for user testing in which individuals will experience and interact with the immersive digital content.

Place:

The PhD student will have research space at both Holovis and DMU, where they can undertake practice-based research within vibrant lab environments. They will be part of a lively community of PhD students within the IOCT, which focuses on research which combines technology and creative practice. The successful PhD applicant will also be part of the Holovis team. They will be fully involved with the company, working across creative development and the implementation of creative technologies.

The student will receive comprehensive supervisory support in navigating the transdisciplinary nature of the project from the IOCT, renowned for its expertise in transdisciplinary practice research. The doctoral training programme encompasses a vibrant range of activities, including workshops, seminars, and sharing events, specifically designed to facilitate practice-based research, providing a platform for the exchange of ideas and knowledge among peers and experts in the field.

Person:

Applicants should be creative practitioners with experience either in creating digital immersive experiences, or in creating artwork with AI, or both. They should have a knowledge and understanding of contemporary practice across digital immersive and creative AI. They should be open to developing transdisciplinary practice.

HOW TO FIND OUT MORE	
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