THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

GLOBAL ENGAGEMENT OFFICE
環球事務處

Opening Minds • Shaping the Future
啟迪思維・成就未來

POLYU Junior Researcher Mentoring Programme 2024

Code:	JRMP2024_06
School / Department:	Department of Computing
Name of Research Team Member(s):	Dr Zackary Sin Ping-tat, Research Assistant Professor
Research Topic:	Enabling interactive metaverse applications with neural rendering
Short Description of the Research Project:	Achieving an accurate visual recreation of reality in the virtual world is one of the keys to having the metaverse capture our imagination. Recent advancements in neural rendering have brought developers closer than ever to realising this goal. The participating students will be part of a team that investigates photo-realistic rendering with the latest computer graphics technology. The core of the project will revolve around using neural rendering techniques to address some of the key issues to enable interactive application development (e.g. game development). Furthermore, given that content creation is expected to be an important part of interactive application development, the participating students will investigate generative AI (diffusion models) to generate content for neural rendering. For most of the project period, the participating students will be expected to carry out preliminary experiments to test the feasibility of new ideas; this will of course involve programming and some problem-solving, particularly related to graphics and machine learning. If the project progresses well, a publication should be generated as an outcome. The participating students could, therefore, also be involved in academic writing. The entire process will be supervised. Students with an interest in graphics (as in CG movies), game development and generative AI may find this project particularly interesting.

No. of Places Offered:	4
Frequency of Meetings:	Bi-weekly
Special Requirement(s):	It is preferable for the participating students to have taken M1/M2, computer-related subjects or Physics. The participating students should have good programming skills (e.g. python, C++). Previous experience with machine learning/computer graphics and/or relevant tools (e.g. Unity/Unreal/Blender) would be advantageous.

* The information presented above is subject to change.