香港城市大學
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Introducing Large Equipment into Modern Physics Teaching with Mixed Reality

Project Number: 6000773

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Abstract:

Modern Physics as a substantial part of the physics discipline is regarded to be difficult to teach because many of its physical phenomena are unintuitive or counterintuitive, and the physical principles behind them are more abstract. In addition, it is hard to arrange experiment class in modern physics teaching, since unlike the experiments in classical physics which need relatively simple and inexpensive tools to demonstrate in class, most of the modern physics experiments require complex large-scale experimental equipment which is rare and expensive, making it difficult to perform live demonstrations and show the experimental phenomena for the students. In this project, the PI plans to develop a virtual demonstration tool using mixed/virtual reality technology, building 3D models of large equipment such as ARPES and STM, creating virtual experimental scenarios, and taking videos of the physics process, so that the students can have intuitive experience of the experiments without being in a real laboratory. The PI expects that this approach will stimulate students' interest in learning the Modern Physics section of AP1203 and related courses and improve the quality of teaching.