

Beyond the eLearning Boundary from Online to Virtual - Case Sharing of AR/VR Application in CUHK / CityU / HKU / PolyU

Date: 10th July 2018 (Tuesday)

Time: 0945 – 1330

Venue: Room B5 (LG/F) Ho Tim Building CUHK (Faculty of Education)

Time	Session
0945 – 0950	Opening
0950 - 1010	Dr. Olivia NGAN School of Biomedical Sciences @ CUHK <i>The Application of Virtual Reality (VR) Technology for Animal Handling and Ethics Training</i>
1010 – 1030	Dr. Ann LAU / Dr. Wai-Kai WONG / Dr. Sam POON School of Biomedical Sciences @ CUHK <i>Digest^{VR}: a New Tool Giving a Facelift to Interdisciplinary Teaching and Learning</i>
1030 – 1050	Prof. Vivian LEE School of Pharmacy @ CUHK <i>In Class Deployment of Immersive Virtual Reality in Clinical Cardiology Pharmacy Education</i>
1050 – 1135	Open-floor hands-on experience I
1135 – 1155	Coffee break with refreshment
1155 – 1215	Dr. Crusher WONG Office of the Chief Information Officer @ CityU <i>Virtual Reality: Water Quality Monitoring (VRWQM)</i>
1215 – 1235	Prof. Henry LAU Department of Industrial and Manufacturing Systems Engineering @ HKU <i>Virtual Reality – a new dimension for sharing and communication</i>
1235 – 1255	Mr. Leo WONG / Mr. Teddy LEE Pao Yue-kong Library @ PolyU <i>Stories from Ancient China: Inspire students' creativity to create storytelling VR projects</i>
1255 – 1325	Open-floor hands-on experience II
1325 – 1330	Wrap-up



The Application of Virtual Reality (VR) Technology for Animal Handling and Ethics Training

Olivia MY Ngan¹, Ray MF Lee², Florence MK Tang³

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Use of laboratory animal in biomedical research is common that hundreds of experiments involving animals are performed and published every month. There are many physiological and genetic similarities between mice / rats and humans that such animal experimentation is helpful for medical science and drug developments. The animal rights activists voice concerns about the abuse of animals, advocating animal welfare and debate about the ethics of animal experimentation. The 3Rs approach - Replacement, Reduction, and Refinement - is widely adopted in to improve the quality of care in the handling of the experimental animal in the contemporary scientific practice. Experimental animals, nonetheless, may not be frequently used for training purposes among students.

Virtual reality (VR) is a computer-generated interface that provides interactive experience and can serve as an innovative simulation tool to support teaching and learning. Our team constructed a 360-degree immersive virtual learning environment based on the animal holding core facility using the latest VR system of HTC Vive with teleport controller.

The design of the virtual animal holding facility focuses on learning of the regulations on the usage of animals by testing and stimulating a series of technical skills on a range affordances in the 3D environment. The setup is designed to enhance spatial and experiential learning, provide a contextual understanding and procedures in handling experimental animals, and sensitize awareness in handling animal diligently.



Digest^{VR}: a New Tool Giving a Facelift to Interdisciplinary Teaching and Learning

Ann Lau, Wai Kai Wong, Sam Poon

School of Biomedical Sciences, Faculty of Medicine,
The Chinese University of Hong Kong

Digest^{VR} is a project focusing on the development of a one-stop platform for both students and teachers, with revolutionary arrangement to cater for the needs of teachers who teach on the same topic but from different perspectives. As our team had previously identified the major challenge in teaching and studying human body structure and functions, which was to relate the text-based or 2D figures to real situations in motion, an integrative and interactive platform is essential to make teaching and learning motivating and interesting. **Digest^{VR}** is a platform using virtual reality to simulate the structure and functions of the digestive system. The digestive tract, including buccal cavity, esophagus and stomach were developed to a three-dimensional environment. Students could view and move along the digestive tract using a first-person view like a food molecule after being swallowed from pharynx. With **Digest^{VR}**, it is our hope that students could appreciate the sophisticated structure and function relationship of our digestive tract, while teachers could add explanatory note or set auto-marking questions (in both text- and graphic-based) in different parts of the digestive tract just by a few easy steps. User statistics could be generated to monitor the learning progress of students. **Digest^{VR}** is a new generation tool with great potential to facilitate integrative learning and collaborative teaching.



In Class Deployment of Immersive Virtual Reality in Clinical Cardiology

Pharmacy Education

Prof. Vivian W.Y. Lee, School of Pharmacy, CUHK
Mr Enoch Ng, School of Pharmacy, CUHK
Mr Felix Fong, School of Pharmacy, CUHK
Ms Amy Lam, School of Pharmacy, CUHK
Ms Livia Ngai, School of Pharmacy, CUHK
Mr Laadan Lo, School of Pharmacy, CUHK
Ms Agnes Fong, CLEAR, CUHK
Mr Leo Chan, ELITE, CUHK
Ms Cathy Wong, ELITE, CUHK
Dr Paula Hodgson, CLEAR, CUHK
Ms Betty Hui, CLEAR, CUHK
Ms Cindi Tang, CLEAR, CUHK

Pharmacy students in Hong Kong face the common challenge of having limited opportunities to experience professional clinical practice, even though they are required to interpret clinical cases and attend pharmacy ward rounds during Years 3 and 4 of their study. It is important to provide systematic teaching materials for pharmacy students on the preparation of clinical cases, the interpretation of clinical notes and clinical abbreviations, and the assessment of clinical cases. The current project is a pioneering project in Hong Kong for the development of clinical cardiology pharmacy pedagogy using immersive virtual reality (IVR) techniques to enable students with no clinical experience to work through interactive cases.

We have developed two IVR teaching modules using real patient cases from Prince of Wales Hospital. We have brought the clinical ward setting into the classroom. Students experienced first-hand clinical exposure in class with guided, step-by-step teaching material to translate clinical knowledge into practice.

Beside IVR, we also had case studies in paper format. We invited the students to conduct user feedback surveys to compare their learning experience on both paper and IVR. We found that the students preferred to have paper format for case discussion or even watching video than using IVR. However, most of them gave positive feedbacks on the use of IVR and thought it was interesting to have a simulated interaction with a patient. In short, technical problem was the major issue we encountered – as there was only one full set of IVR equipment with remote control in the classroom. Most of the students had to use their smartphone and provided headset to experience the IVR cases. In addition, there were not enough IVR smartphone headsets for all students. As a result, they had to take turns to use the headsets, and some students could only view the cases as normal videos on laptop computers as their mobile phones were not capable to play the IVR cases. Furthermore, many students complained that the IVR video consumed a lot of battery on their smartphones and laptop computers.

In conclusion, IVR in pharmacy education is still new in Hong Kong, students did find the use of IVR in this context interesting. However, proper guidance, hardware and software improvement, and clear instruction are required for in class deployment of IVR.



Virtual Reality: Water Quality Monitoring (VRWQM)

Dr. Crusher WONG, Miss Angel Lu, Miss Kayla Lam

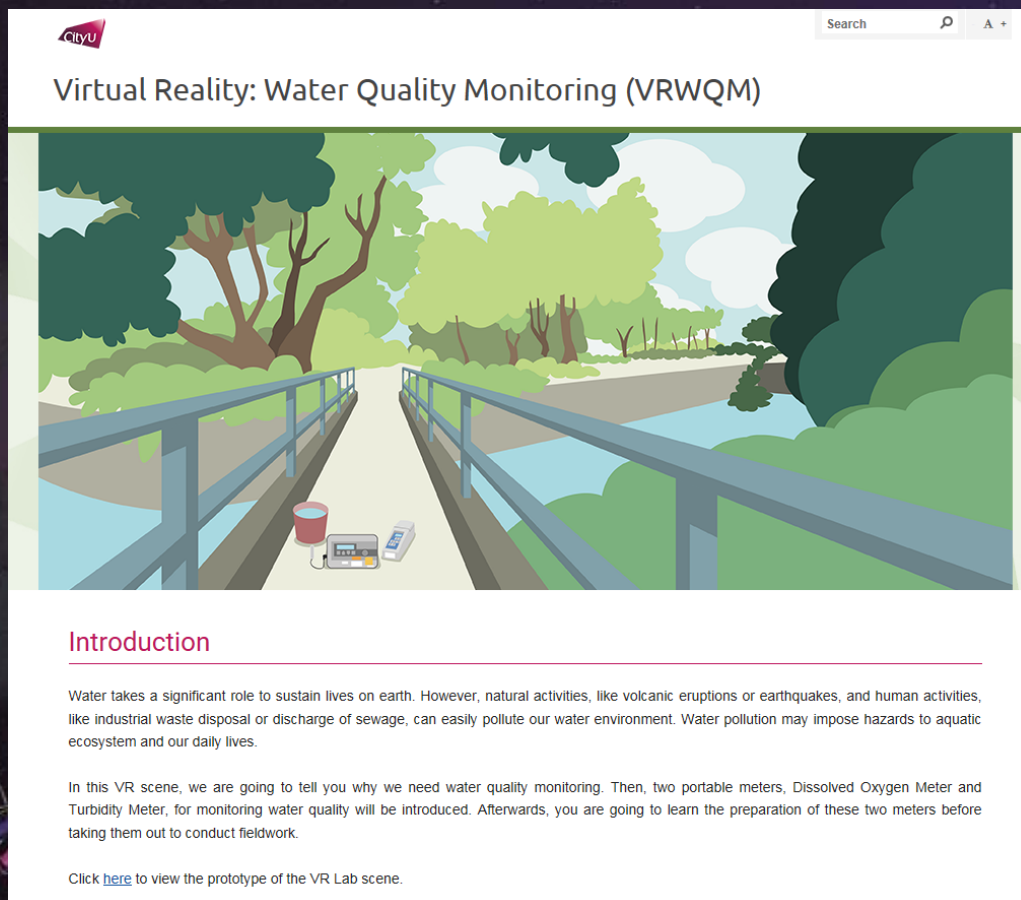
Office of the Chief Information Officer, The City University of Hong Kong

Introduction

Water takes a significant role to sustain lives on earth. However, natural activities, like volcanic eruptions or earthquakes, and human activities, like industrial waste disposal or discharge of sewage, can easily pollute our water environment. Water pollution may impose hazards to aquatic ecosystem and our daily lives.

In this VR scene, we are going to tell you why we need water quality monitoring. Then, two portable meters, Dissolved Oxygen Meter and Turbidity Meter, for monitoring water quality will be introduced. Afterwards, you are going to learn the preparation of these two meters before taking them out to conduct fieldwork.


<http://www.cityu.edu.hk/vrwqm/>



CityU

Search

Virtual Reality: Water Quality Monitoring (VRWQM)



Introduction

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Click [here](#) to view the prototype of the VR Lab scene.



Virtual Reality – a new dimension for sharing and communication

Henry Lau

Department of Industrial and Manufacturing Systems Engineering

The University of Hong Kong

Virtual reality (VR) has recently emerged to be one of the hottest technology surrounding us. VR allows us to experience vividly situations that are difficult, if not impossible to get by, and create immersive environments that are rather difficult to tell between real and virtual. While the interest in VR technology is ever increasing, VR provides us with a new dimension in communication and experience sharing for teaching and learning. With VR providing a radically new pedagogy in education, it opens up new avenues in a wide spectrum that is not limited to science and engineering, creative arts and education, and many more. In the talk, Henry is going to share his research and development in VR over the past decades and describe some of the most current deployment of VR technology in the University of Hong Kong, in particular the innovation of the fully immersive imseCAVE VR system that have significant impact in academic and industry.

Henry LAU

Henry is an Associate Professor in the Department of Industrial and Manufacturing Systems Engineering, The University of Hong Kong (HKU). Henry graduated from the University of Oxford with a bachelor degree in Engineering Science and a DPhil in Robotics. Prior to joining The University of Hong Kong, he worked as an engineer and manager at the UK Atomic Energy Authority (UKAEA) and AEA Technology plc. in projects involving bespoke tele-robotics systems and advanced automation systems for decommissioning and waste management. While working in England, Henry was a Croucher Foundation Research Fellow at the University of Oxford Robotics Research Group, and a visiting lecturer at Brasenose College, Oxford. Henry's research interest includes virtual reality technology, artificial intelligence and robotics. Henry is also the Warden of University Hall at HKU.



Stories from Ancient China: Inspire students' creativity to create storytelling VR projects

Mr. Leo WONG & Mr. Teddy LEE

Pao Yue-kong Library, The Hong Kong Polytechnic University

Virtual Reality (VR) development grows rapidly and VR content widely adopted by industries, content creation and popularisation of VR shall not limit to particular subjects. The Pao Yue-kong Library will share their experiences and ideas to integrate cultural arts and technologies from the VR contest "Stories from Ancient China", and extend the VR development to students from all disciplines.

<http://libguides.lb.polyu.edu.hk/i-Space/vrcontest>

The screenshot shows a webpage titled "Guides & Tutorials" for the "i-Space: VR Contest". The page is part of the Pao Yue-kong Library at The Hong Kong Polytechnic University. It features a navigation menu with options like "Welcome", "VR Contest", "Events", "Workshops", "Virtual Reality", "Internet of Things", "3D Printer", "Digital Makerspace", and "Digital Visualisation Room". The main content area is titled "VIRTUAL REALITY CONTEST" and "STORIES FROM ANCIENT CHINA". It includes a banner with a VR headset user and Chinese text "中國古代故事 虛擬實境創作比賽". The page contains introductory text about the contest, a list of page contents, and a section for "Cultural Talks". A prominent button says "VR Contest Registration Now Open".

Guides & Tutorials

Library > Guides & Tutorials > i-Space > VR Contest

i-Space: VR Contest

Introduction to the services in i-Space@PolyU Library to let you experiment and create prototypes with digital makerspace equipment and technology

Search this Guide Search

Welcome VR Contest Events Workshops Virtual Reality Internet of Things 3D Printer Digital Makerspace Digital Visualisation Room

Digital Studio

VIRTUAL REALITY CONTEST

STORIES FROM ANCIENT CHINA

中國古代故事 虛擬實境創作比賽

Be it Yue Fei or Mu Lan, stories and fables from ancient China carry with them important life lessons that are still significant in our lives today. Turn these stories into VR so that more people can experience life in ancient China.

The Library is organising a series of talks and workshops and by participating in these series of talks and workshops, you will be able to pick up skills to develop your own VR story. Your VR story will then be submitted into a contest.

The contest is supported by the Department of Electronic and Information Engineering (EIE).

Contest – Important dates to note

VR Contest Registration Now Open

Register and submit your storyline (less than 500 words OR

Page Contents

- Contest – Important dates to note
- Cultural Talks
- Sample Storylines
- Equipment & Software Available
- Submission Guidelines
- Prizes
- Useful Resources
- Poster
- Contact Us

Cultural Talks

為了啟發同學創作虛擬實境故事的靈感，我們將舉辦以下兩場文化講座，讓大家可以與資深文化工作者交流。

歡迎所有理工大學師生參與：

1. 細說民間故事 The Stories of Preserving Hong Kong's Culture

近年全球經歷金融經濟、城市發展和生活文化的急劇轉變，失衡的發展觀念，令不少珍貴的地道文化傳統和實物財產消失。因此，傳統和本土文化的「保育」工作，迫在眉睫。文化葫蘆是香港的非牟利推廣本土文化的機構，多年來，支持推動傳統文化遺產保育，配合歷史研究，透過設計、藝術和本土文化融合三者作為一個平台，以不少嶄新的手法和科技訴說故事。講者將以深入淺出的方法，分享

