

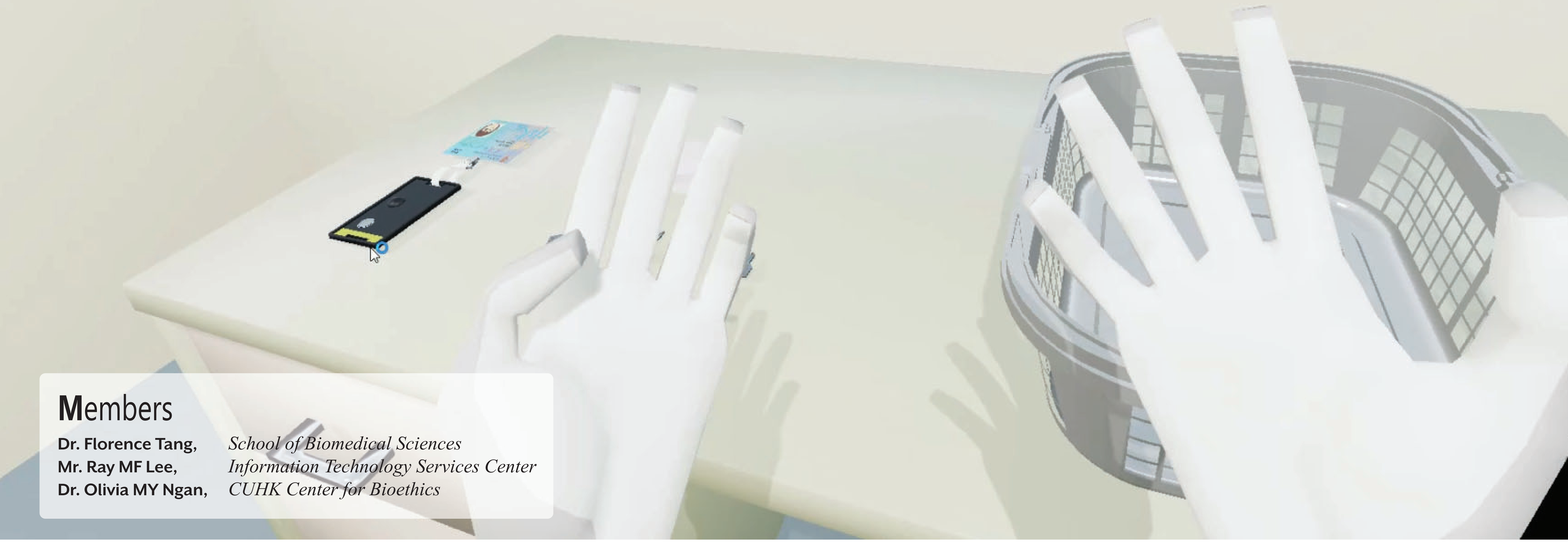
# Perfect or Imperfect Match?

Application Leap Motion Device in the Development of the Immersive Virtual Reality Simulator

### Members

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## Backgrounds

Under the biomedical sciences curriculum, undergraduates should be training various techniques in biomedical research. Moreover, the knowledge of laboratory safety is of importance. The training in safety procedures for the handling of radioactive chemicals causes difficulty as they are hazardous and harmful to health causing the potential problem with high-risks and impacts. The students may be threatened with fatal disaster if the handling procedures are improper during the practical training.

From the application of immersive virtual reality technology (IVR), the concept of “virtual experiential learning” has become hostable for the better enhancement to students who must be well-trained for good laboratory practice and etiquettes.

## Objectives and Methodology

- The pilot study was to investigate which types of virtual handling systems is helpful in stimulating students with limited laboratory experience in operation radioactive machine, preventing unpredictable accidental issues, and supporting active and constructive educational sector.
- The project was to build up innovative courseware using HTC VIVE IVR as the simulator for understanding the proper procedure to operate the gamma irradiator.
- Our team has adopted two different controlling systems for the operation, i.e. the HTC controller and the leap motion device for the virtual operation of machine.
- The target group for the pilot study was from the biomedical sciences undergraduates.

## Results and Discussion

### The leap-motion device system

The players grasped any virtual with they own hands. The leap motion device has been mounted on the headset, the player need to place the forearm higher for tracking the movement of the hands. However, the players are required to move around in the immersive virtual environment and they always forgot the rules for the simulation, the virtual stuff has been got lost once it was out of the detection range. They feel frustrated during the simulation process cannot really enjoy the training indeed.

### The HTC controller device system

Students all agreed that the HTC controller was good enough to control the operation process but did not have any sensation of the hands-object interaction; but still, the controllers of the HTC VIVE system are definitely running well for the player to gain the experience.

## Take Home Message



The outcome of the courseware can enhance study motivation to learn and equip their necessities in the future career path. At present, the leap motion device is good in status virtual situation but may not be suitable for the IVR.

