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Friday 19 June 2020 | 3pm - 4pm



Digital Engagement and Examples for the Cultural Sector

Dr Frank Guan Assistant Professor Singapore Institute of Technology

### **ABOUT THE WEBINAR**

In this webinar, Dr Frank Guan will give an overview on the development of ICT technologies and their applications in various sectors. He then introduce some examples of technologies, such as Virtual Reality (VR), Augmented Reality (AR) and Gamification that can be used for digital engagement in the cultural sector. Dr Guan will also share his experience in creating accessible technologies for beginners and in translating digital engagement tools online.

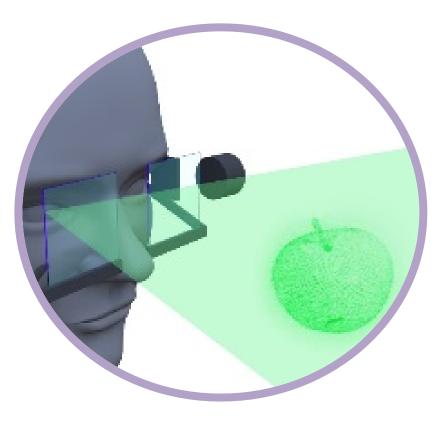
### **ABOUT THE SPEAKER**

Frank is currently an Assistant Professor at Singapore Institute of Technology (SIT). His research interests include Virtual Reality (VR), Augmented Reality (AR) and Artificial Intelligence (AI). Frank had been leading and conducting research in three large research centres with collaborations from both academics and industry. He currently sits on the editorial board for two international journals and serves on the advisory board of a local tech start-up.









# **Digital Engagement and Examples for Cultural Sector**

Dr Frank Guan **Assistant Professor** Singapore Institute of Technology



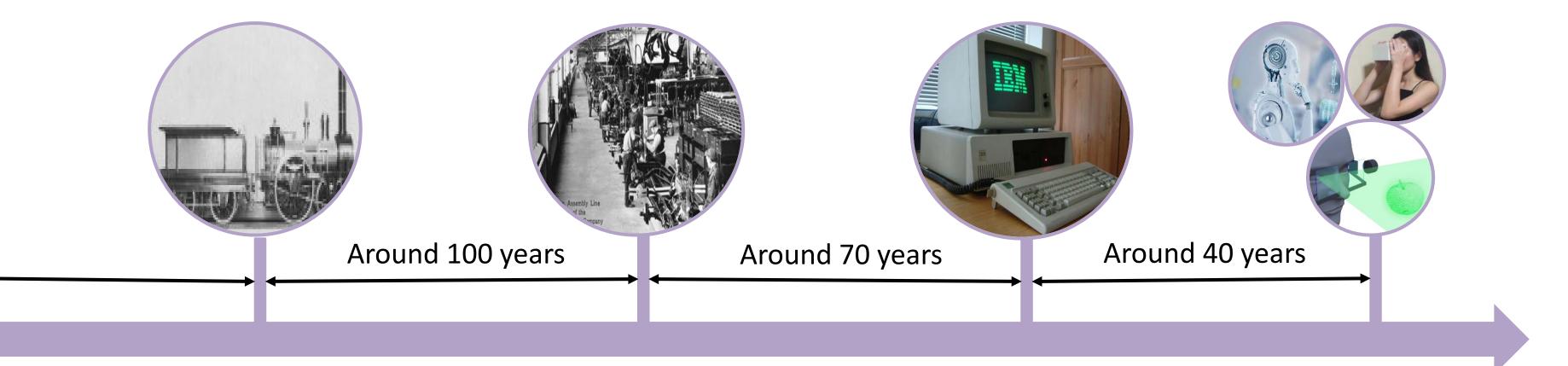
# INTRODUCTION



# INTRODUCTION

examples

# Treasure the Past, Enrich the Future



### End of 18<sup>th</sup> Century

#### Water & Steam Power

### Beginning of 20<sup>th</sup> Century

### Early 1970

**Electrical Power** 

Electronics & Computer

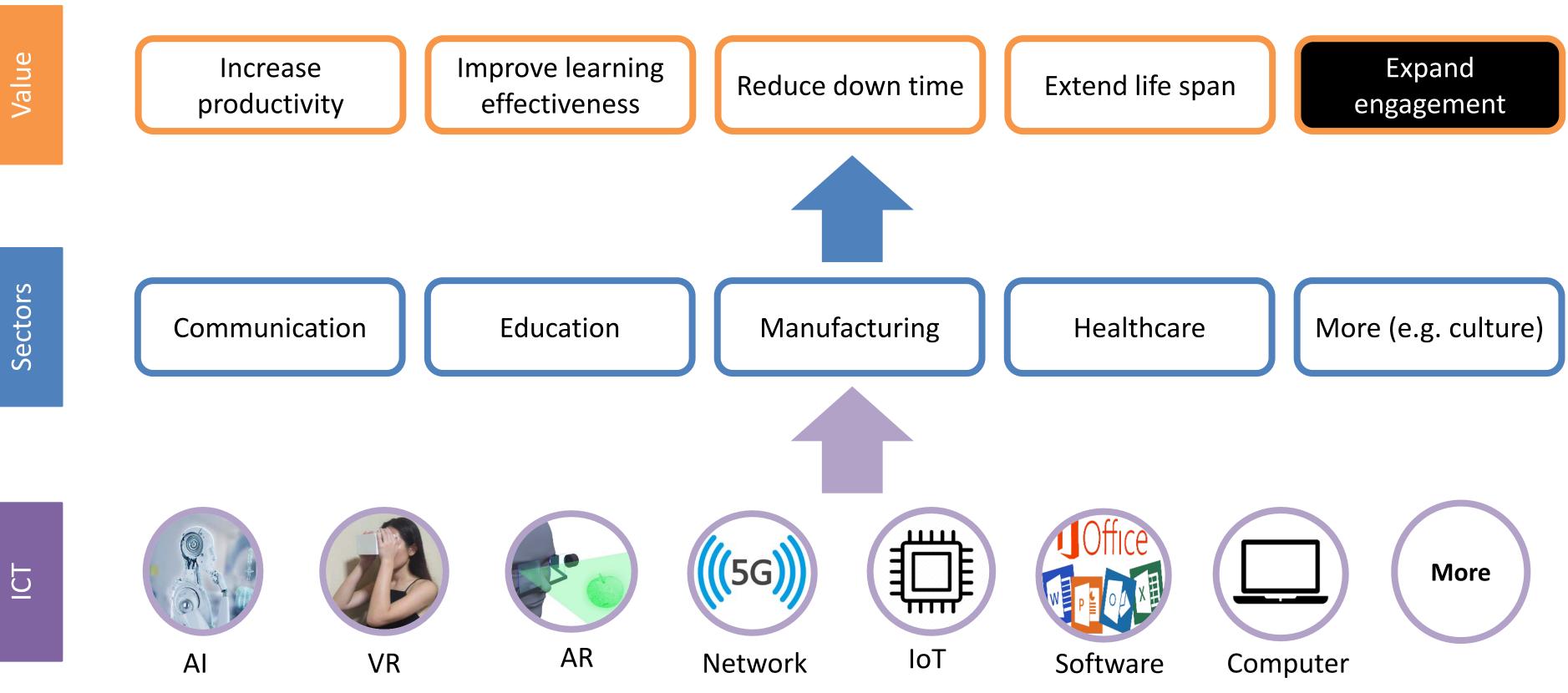
https://www.abc.net.au/classic/programs/music-in-time/music-in-time/11565718 https://www.carpages.ca/blog/worlds-oldest-car https://linustechtips.com/main/topic/19854-find-the-oldest-computer-and-post-it-here/

### COLLABORATION

### Today

AI, VR/AR, 5G, IoT, Cloud, etc

# **Overview of ICT Technologies**



### ICT Tools for Digital Engagement



# **Digital Engagement for Cultural Sector**

# Novel Digital Technologies



Virtual Reality (VR)



### Augmented Reality (AR)

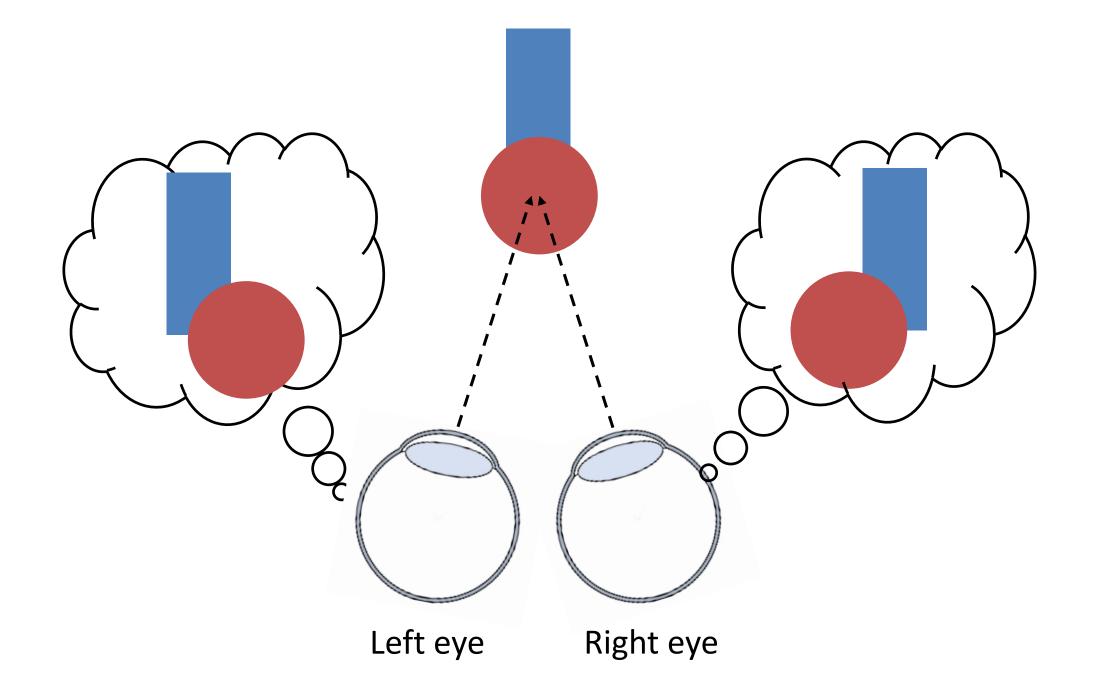
### COLLABORATION





### Gamification

# Virtual Reality (VR)



Jia Ming Lee, XX Xia, Clemen Ow, Felix Chua, YQ Guan. VEGO: A Novel Design towards Customizable and Adjustable HMD for VR. Submitted to Journal of Virtual Reality and Intelligent Hardware.





# Types of VR

### Desktop



https://digital.hbs.edu/platform-digit/submission/zspace-the-ultimate-learning-experience/





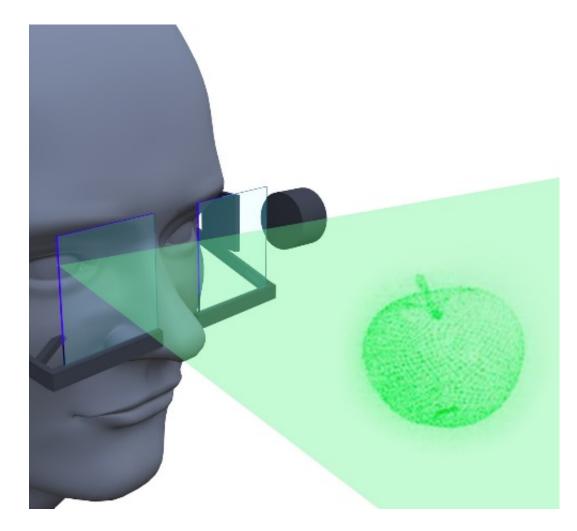
### Level of Immersion

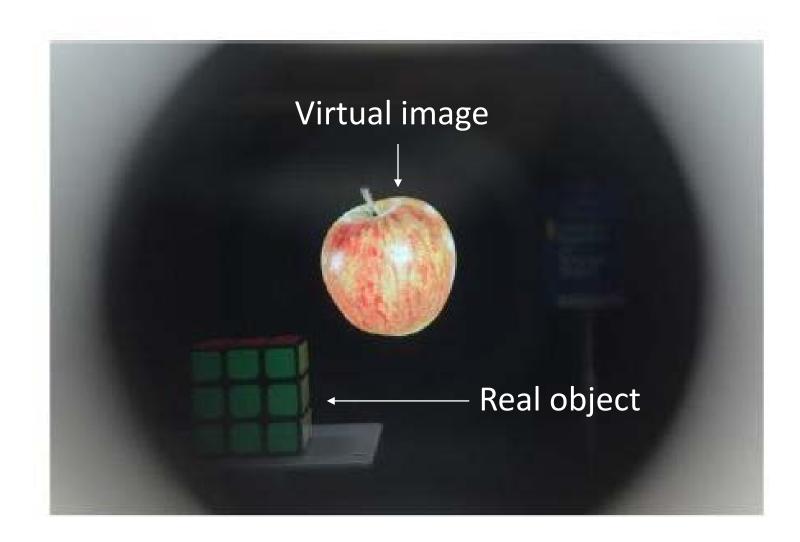
Low





# Augmented Reality (AR)



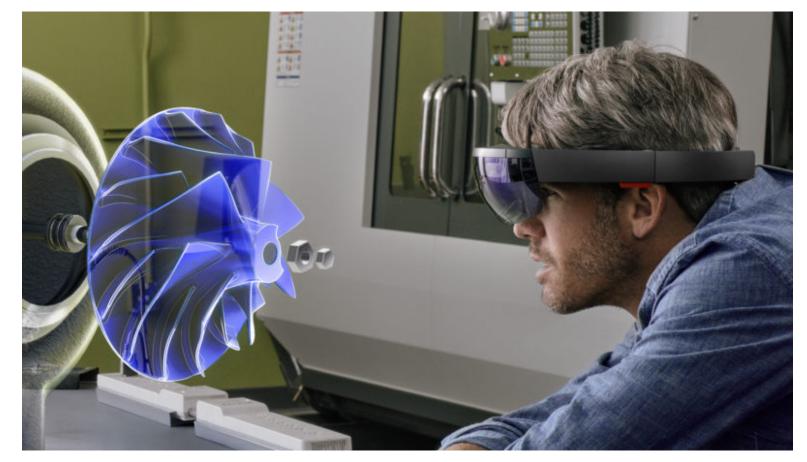


Xinxing Xia, Yunqing Guan, Andrei State, Praneeth Chakravarthula, Kishore Rathinavel, Tat-Jen Cham, Henry Fuchs, Towards a switchable AR/VR near-eye display with accommodation-vergence and eyeglass prescription support, ISMAR and Special Issue of IEEE TVCG, 2019.

# Types of AR



### Video-see-through AR



https://www.thedrum.com/news/2017/06/19/ikea-s-ar-furniture-app-will-get-upgrade-apple

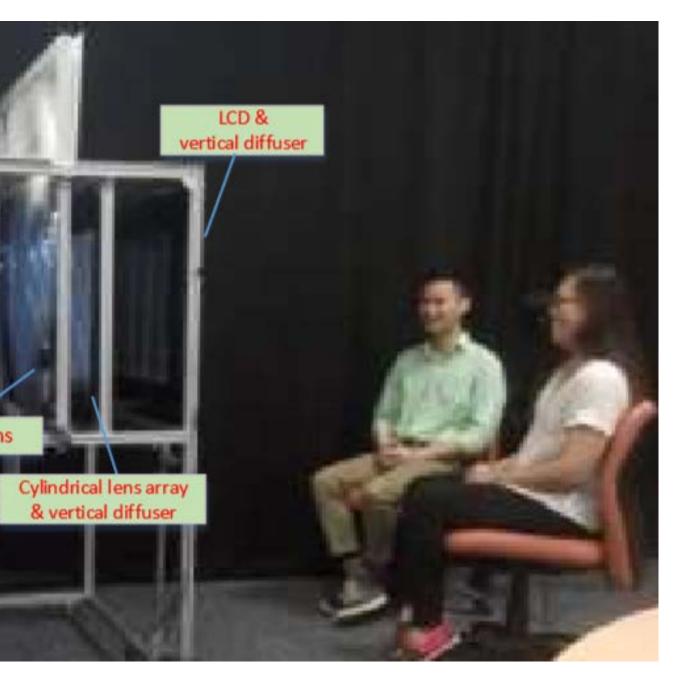
https://www.engadget.com/2017-11-01-microsoft-hololens-hard-hat-european-expansion.html

### COLLABORATION

### **Optical-see-through AR**

## Glass-free 3D Display





# INTRODUCTION

# EXAMPLES

# 3D Telepresence (BeingThere Centre, S\$23M)



### Channel 8, MediaCorp, 2011



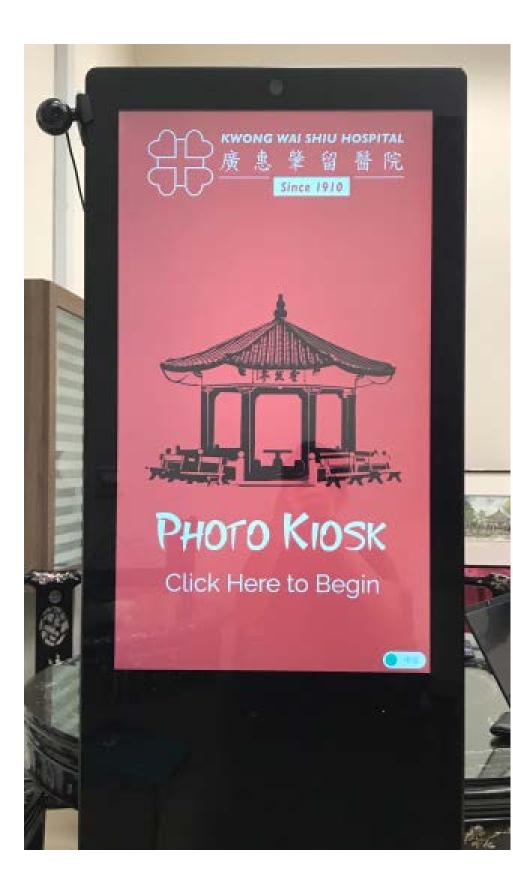


## HoloPortation

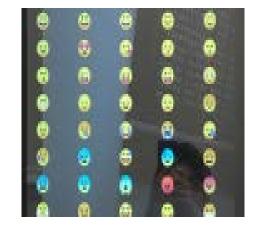


https://www.youtube.com/watch?v=7d59O6cfaM0

### AR Photo Kiosk (ITP Project with KWSH)









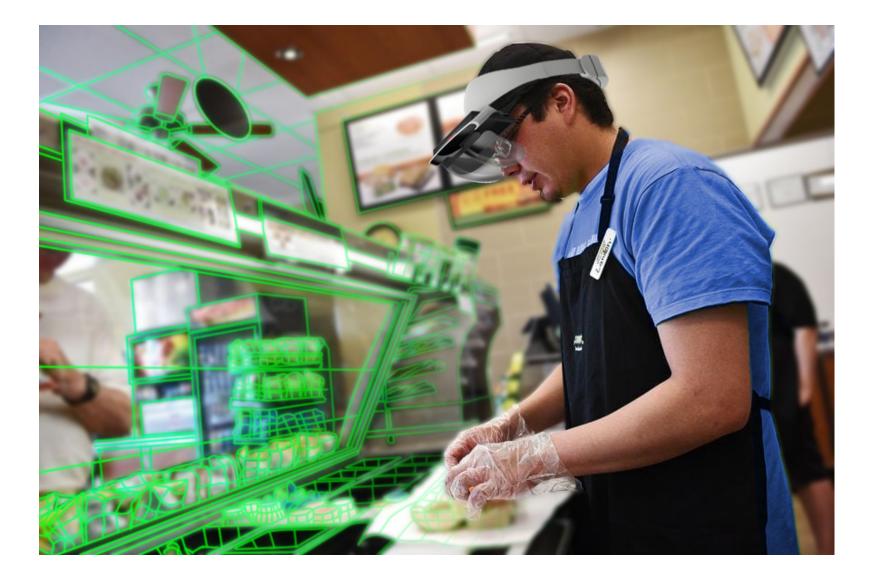


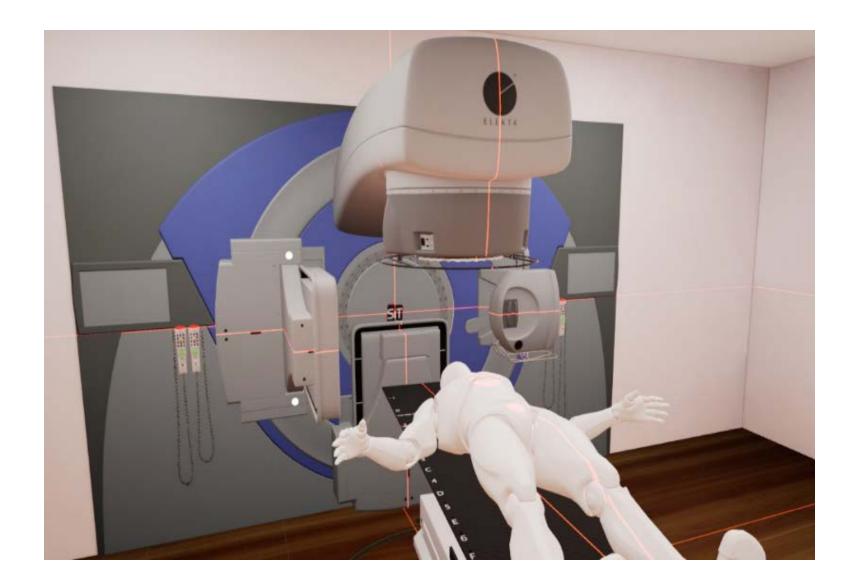




Question		Responses 🔕
Kwong Wai Shiu H	ospital Survey	
26 Responses	01:13 Average time to complete	Active <sub>Status</sub>
View results		Open in Exce
1. What is your age?		
Below 20	2	
😑 20 to 30	· · ·	
30 to 40	0	
40 to 60	20 C	27

# AR/VR for Convocational Training





# VR for Art and Sport





## Gamification for Senior Citizens

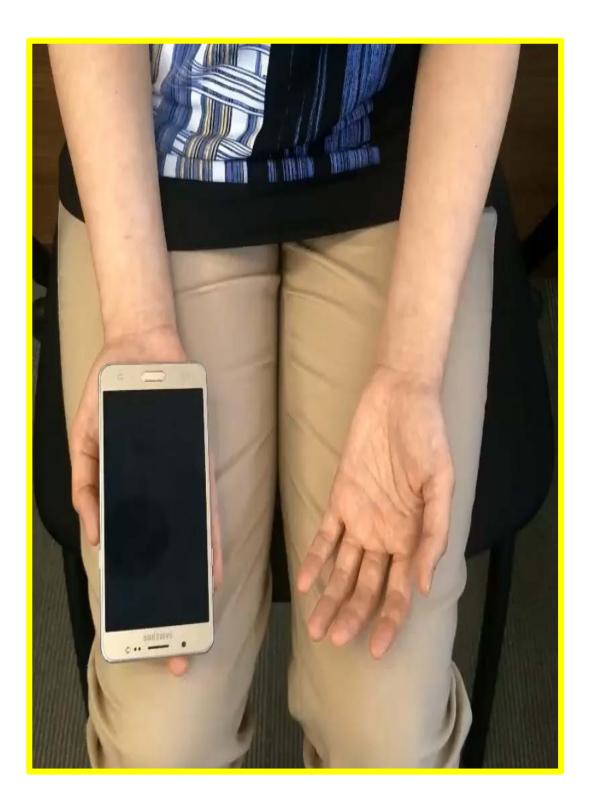




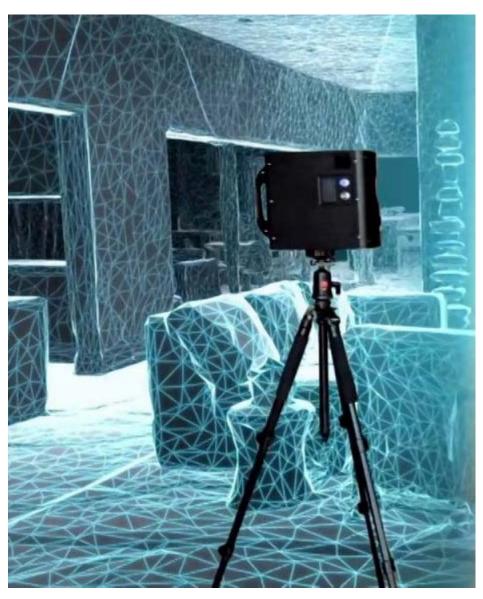
# Gamification for Medical Rehabilitation







# 3D Capturing for Online Virtual Museum Tour



Matterport

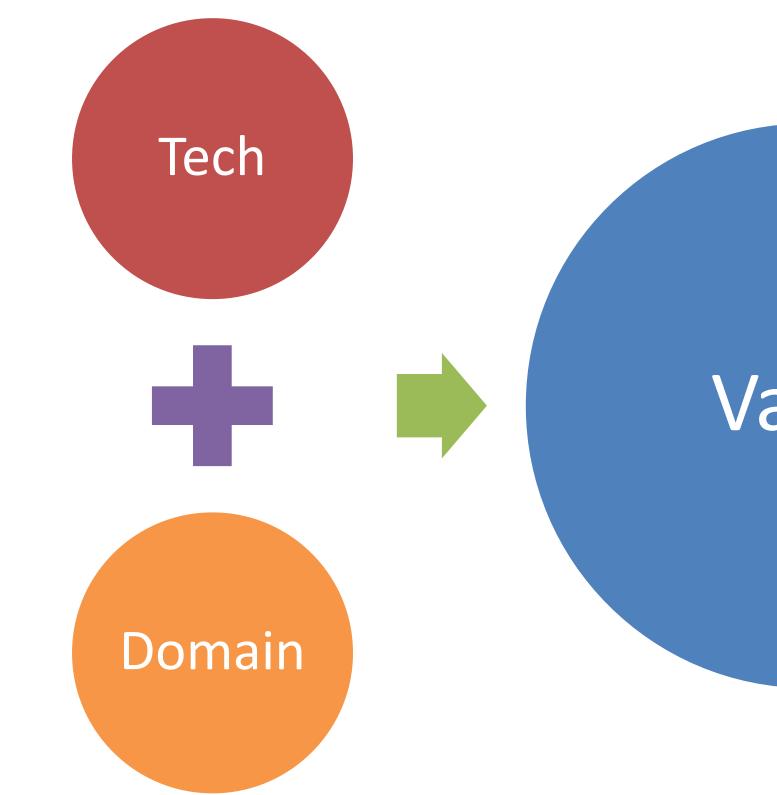


https://www.youtube.com/watch?v=Y7kbOZMInZQ

# INTRODUCTION

EXAMPLES

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### COLLABORATION

# Value

# **SIT Ignition Grant**

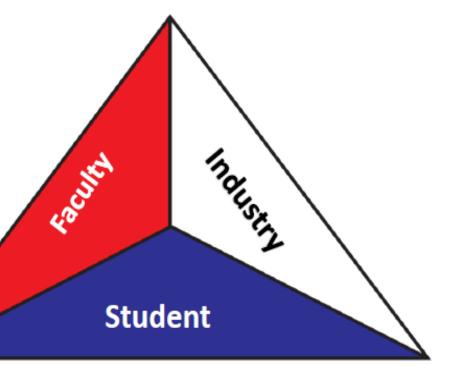
### SIT

- Provides early-stage funding support for SIT's faculty to embark on industry projects involving students and industry partners.
- Proof-Of-Concept (POC) Project co-created with Industry.
- Below \$\$250,000 funding(not paid to industry)
- Fundable items: Manpower, Equipment & Materials and consumables.
- Milestone: Development of prototype/concept/solution with industrial partnership.

### **Industry Partner**

- Provides "Letter of Support" with contributions stated.
- Minimum contribution of 30% of project value in cash and/or in-kind.

### COLLABORATION



Tripartite relationship -Student, Faculty & industry

### SIT IWSP & ITP



Engage work-ready candidates today. Secure your talents for tomorrow. INTEGRATED WORK STUDY PROGRAMME



### DIGITAL ENGAGEMENT AND EXAMPLES FOR CULTURAL SECTOR



# **THANK YOU!**

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