SWANSEA UNIVERSITY PRESENTATION ON AUGMENTED REALITY (HCI) IN THE FIELD OF EDUCATION

MSc Data Science 2022 - 2023

30 – 03 – 2022

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Submitted To :
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Prifysgol Abertawe

1. AR: BRIEF INTRODUCTION

- A <u>combination of a real scene viewed by a user and a virtual scene generated by a computer</u> that **augments** the scene with additional information.
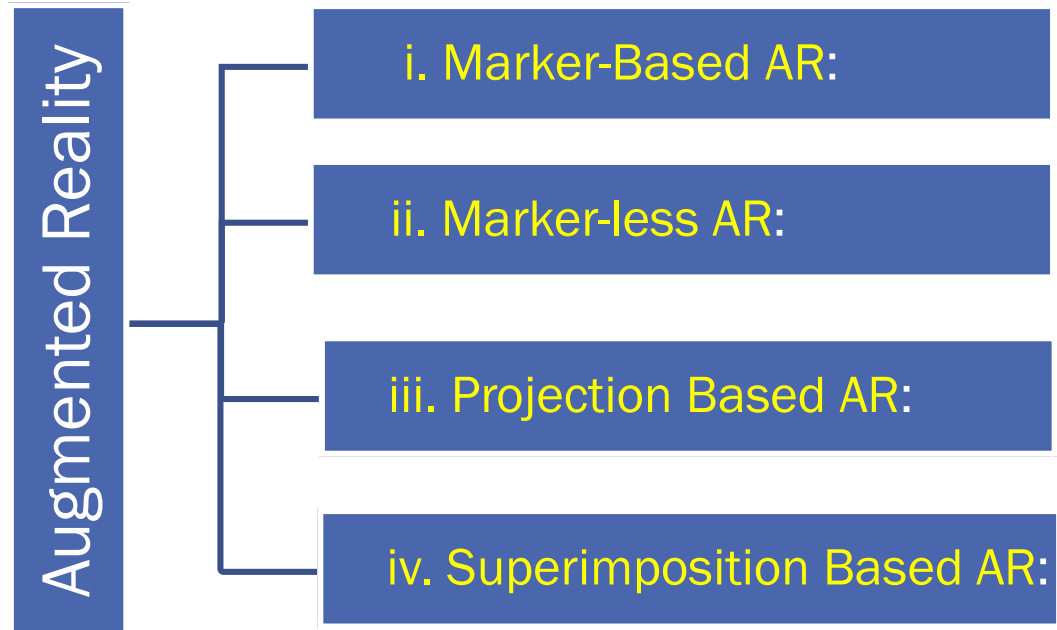
2. <u>AR</u>: WHAT IS AR

■ Augmented reality (AR) is an <u>interactive experience</u> of a <u>real-world environment</u> where the objects that <u>reside in the real-world</u> are "<u>augmented</u>"- <u>amplify</u> by <u>computer-generated perceptual information</u>, including <u>visual</u>, <u>auditory</u>, <u>haptic</u>, <u>somatosensory</u>, and <u>olfactory</u> sensory modalities

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3. AR: WHAT IS AR - Example

4. AR: TYPES OF AR

Augmented Reality

- i. Marker-Based AR:
- ii. Marker-less AR:
- iii. Projection Based AR:
- iv. Superimposition Based AR:

4. <u>AR</u>: TYPES OF AR

i. Marker-based AR - Recognition based approach

4. AR: TYPES OF AR

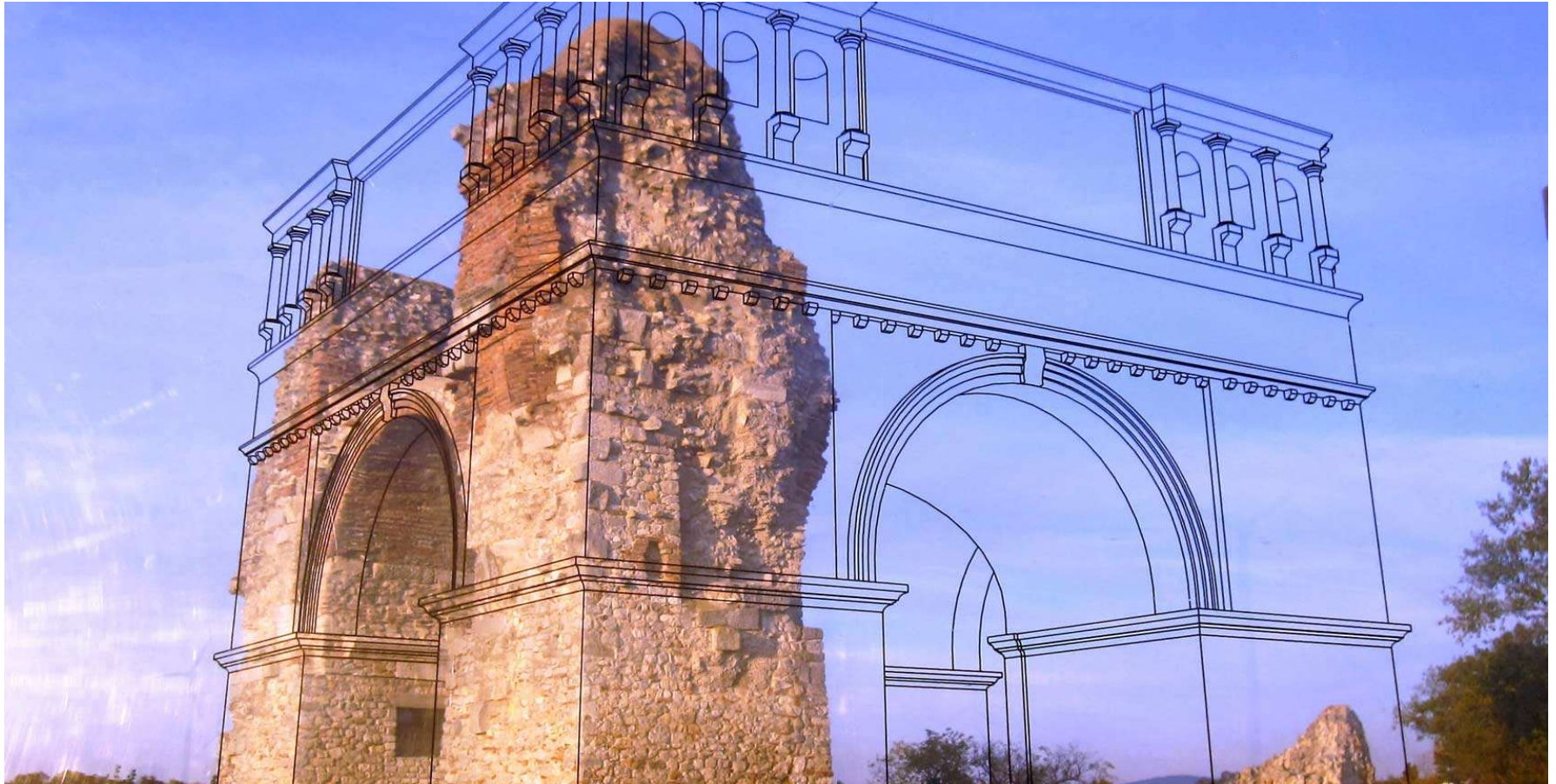## ii. Marker-less AR - location-based or position-based

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BS1   Bhuvan Shukla, 15-03-2022

iii. PROJECTION BASED AR - Projecting synthetic light to physical surfaces

iv. Superimposition-based AR – Displays original view with an augmented

5. <u>AR</u>: Problems, Aims and Objectives

- Accessibility

- Usability.

- Technical Developer

- Dissemination.

- Pedagogical Approach.

6. AR: Related Work

HISTORY

https://thinkmobiles.com/blog/augmented-reality-tourism/

GEOGRAPHY

https://vrscout.com/news/the-australian-air-force-is-now-testing-the-microsoft-hololens/

CIVIL

https://education.viewsonic.com/augmented-reality-education-learning-2/

6. AR: Related Work

FURNITURE AND RETAIL

Houzz

https://thinkmobiles.com/blog/augmented-reality-furniture/

https://blog.triple.io/how-to-market-furniture-in-augmented-reality-989cdab09f24

https://thinkmobiles.com/blog/augmented-reality-retail/
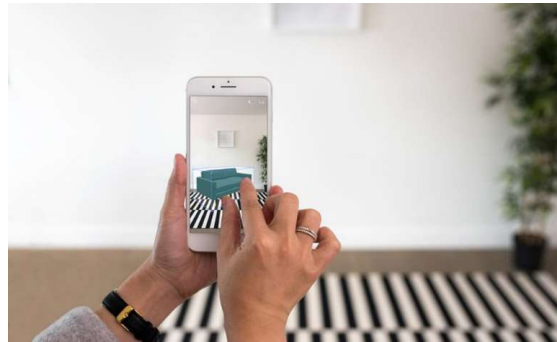
6. AR: Related Work

Bio – MEDICAL

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6. AR: Related Work

EDUCATION

https://thinkmobiles.com/blog/augmented-reality-education/

https://medium.com/@arroundsmm/augmented-reality-in-education-a-way-to-future-cc38e755c6f4

https://education.viewsonic.com/augmented-reality-education-learning-2/

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7. AR: Proposed Solution

■ **Accessibility**
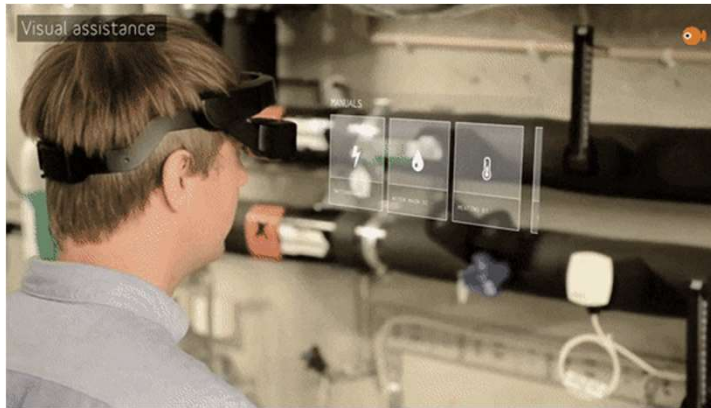
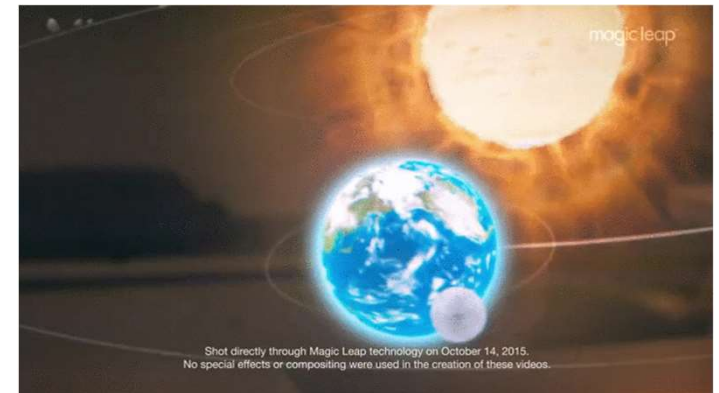

https://thumbs.gfycat.com/GlaringPowerfulAlbertosaurus-size_restricted.gif   https://giphy.com/gifs/wikitude-movie-augmented-reality-smartglasses-uuWEJYU9OE
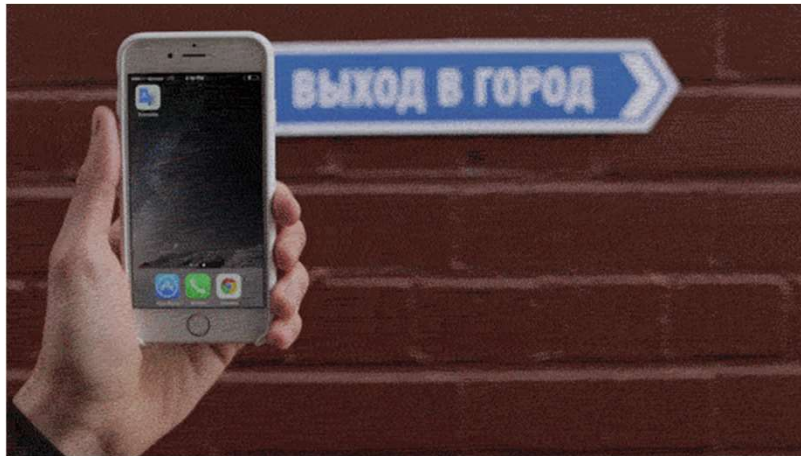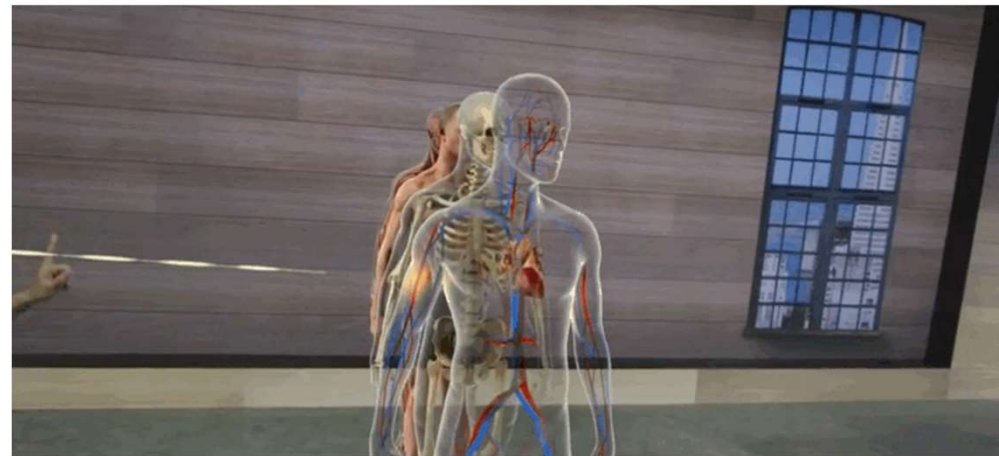
■ **Usability**

https://i.gifer.com/8ycq.mp4

https://i.gifer.com/9Ns7.mp4   15

7. AR: Proposed Solution

https://i.gifer.com/CgES.gif

https://i.gifer.com/7qVj.mp4

- ■ Dissemination

- ■ Pedagogical Approach.

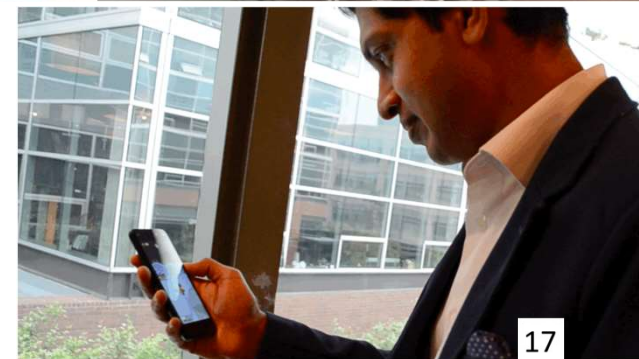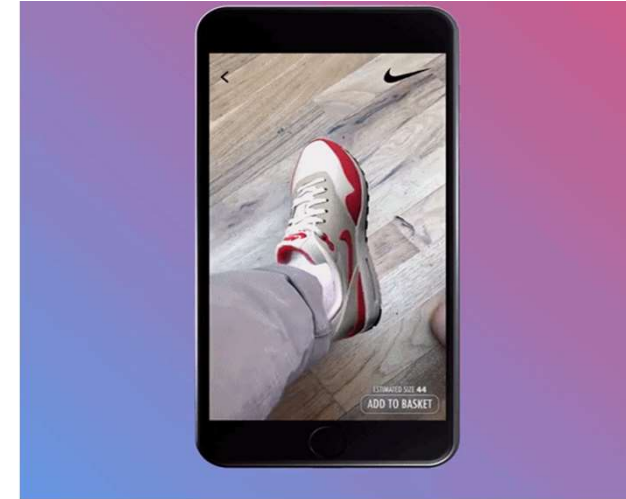- ■ Technical Developer

8. AR - Conclusion

3D Learning

Business and Marketing Education

AR

Medical

Gaming

Social Media

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9. References

- Mayank Pandey, Ms. Prabha Nair,Volume 3 Issue 5 may, 2014 Augmented Reality based on Image Processing https://pdfs.semanticscholar.org/1712/a17fb96601903b5b45b8a94d2fbb551bf3de.pdfhttps://pdfs.semanticscholar.org/1712/a17fb96601903b5b45b8a94d2fbb551bf3de.pdf

- Augmented Reality in Reality Haibin Ling , 01 August 2017 https://ieeexplore.ieee.org/document/7999155

- Augmented Reality Victoria Interrante ; Tobias Höllerer ; Anatole Lécuyer , 12 April 2018 https://ieeexplore.ieee.org/document/8336832

- https://thinkmobiles.com/blog/what-is-augmented-reality/

- https://www.blippar.com/blog/2018/08/21/what-is-augmented-reality-and-how-does-augmented-reality-work

9. References

- Garzón, J. (2021). An overview of twenty-five years of augmented reality in education. In Multimodal Technologies and Interaction (Vol. 5, Issue 7). MDPI AG. https://doi.org/10.3390/mti5070037

- Yuen, S. C.-Y., Yaoyuneyong, G., & Johnson, E. (2011). Augmented Reality: An Overview and Five Directions for AR in Education. Journal of Educational Technology Development and Exchange, 4(1). https://doi.org/10.18785/jetde.0401.10

- Liu, R., Salisbury, J. P., Vahabzadeh, A., & Sahin, N. T. (2017). Feasibility of an Autism-Focused Augmented Reality Smartglasses System for Social Communication and Behavioral Coaching. Frontiers in Pediatrics, 5, 145. https://doi.org/10.3389/fped.2017.00145

10. THANKS...!!!

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