





Augmented Reality. Project Demonstrations EN.601.454/654

Thursday, December 15th. Malone Hall - Rooms 222 and 228. 18:00 to 21:00 Instructor: Alejandro Martin Gomez

Class Assistants: An Chi Chen, Muhammad Hadi, Yihao Liu

Tracking

Cameras

Robotics and Medical Applications

Real Reflection of 3Dprinted Spine Model

reflection of the virtual needle

Augmented Mirrors

Real 3D-printed Spine Model

Observer with

Collision Awareness

3D User Interaction

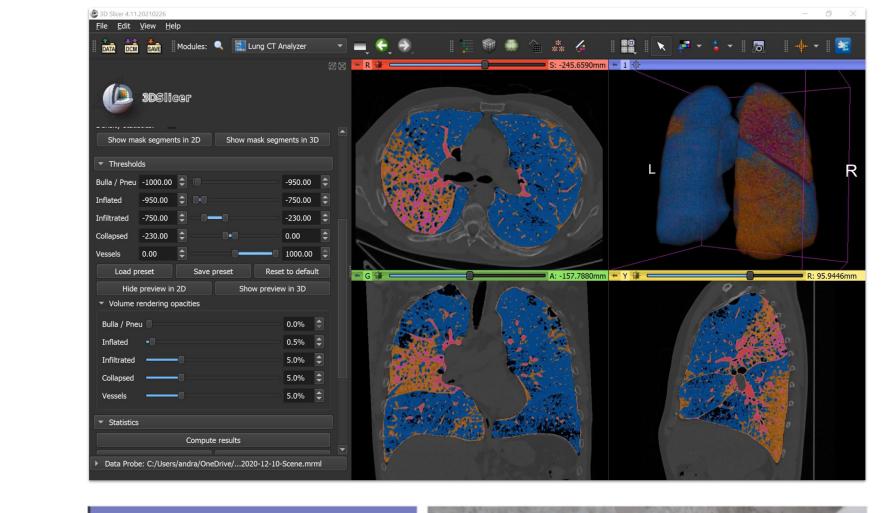


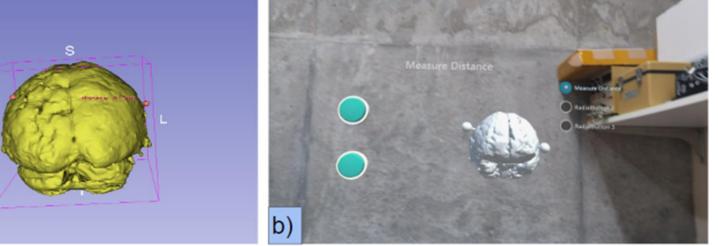
Mirror Plane Norma

Vector



Suites with AR Devices

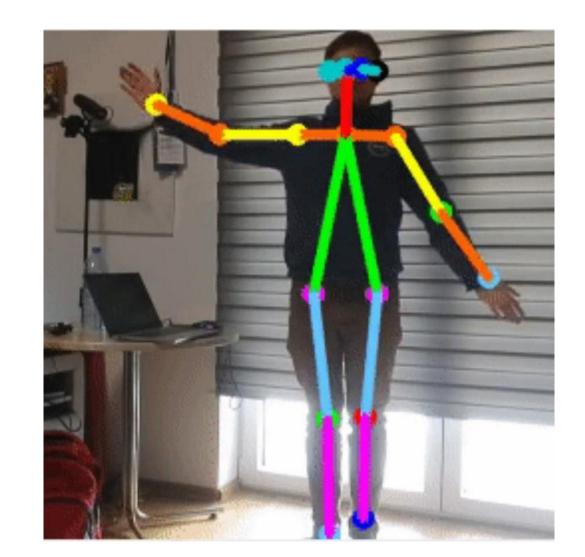






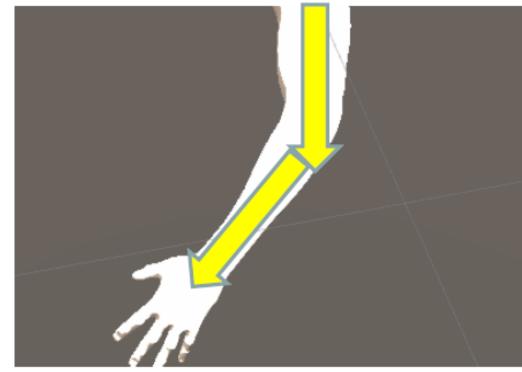
Entertainment

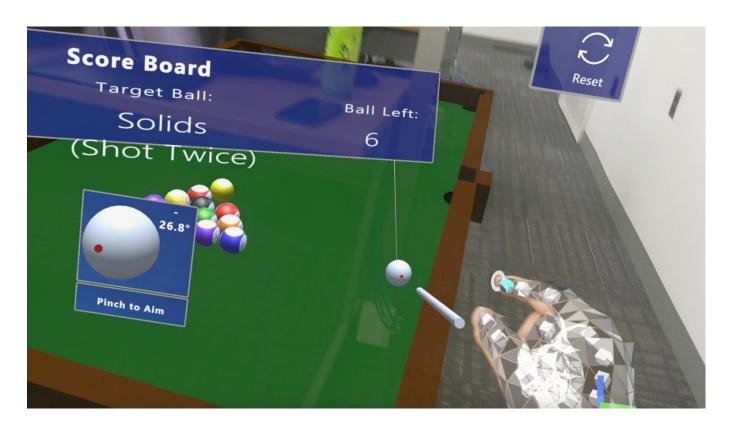
2



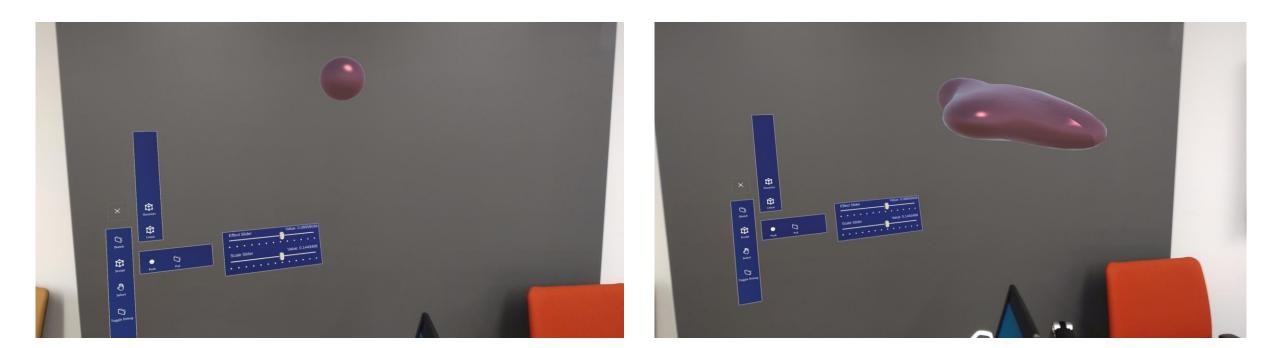


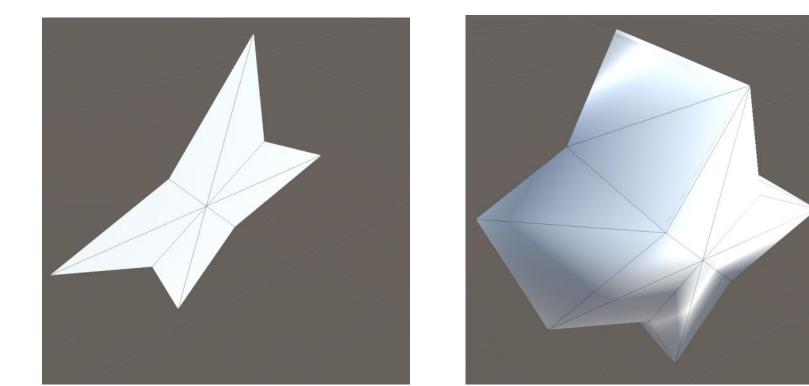
Collaborative Environments for AR Creation



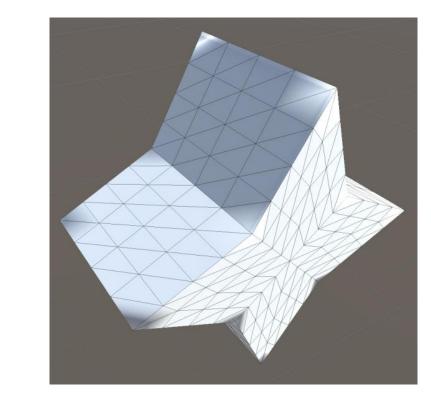








Y.



Teaching and Education

Interactive Posters



Immersive Learning for Linear Algebra

Magic Mirrors

Augmented Reality Posters

Elizabeth Cho, Haoxuan Huang Mentor: An Chi Chen Instructor: Alejandro Martin Gome

Johns Hopkins University

Academic posters are often used at poster sessions to summarize the work and findings of the presenters. However, the content is presented in only 2 dimensions, which presents limitations for how information, such as 3D graphs, models, and videos, can be presented. By adding the ability to project virtual content onto the posters, we can enhance these presentations.

The features we focused on were projecting 2D content, such as videos and animations, 3D content, such as 3D graphs and models, and an avatar to represent the author paired with a pre-recorded audio of their presentation. We aimed to allow the user to interact with the content by allowing them to play and pause audio/video and rotate the 3D content. We also have our application deployed on both Android and iPhone as people are most likely to have these at a poster session.

Nethod

 2D projected content Used Vuforia to identify markers and project either a video or animation 3D projected content Used Vuforia to project an interactable 3D model

Used an icon and a 3D avatar as a stand-in for the author

Pre-recorded author presentation

Deployed on both Android and iPhone

Multi-device deployment



Fig 2. Skull [3, 4

Results Conclusions The figures used on the poster act as the markers for the main features We were able to create a mobile application that can be used at poster sessions to project virtual content that of our project. people can interact with to enhance how content is presented. A feature to consider for future development is allowing the presenters to upload their own images and content to be projected as the markers we are currently using have been uploaded to Vuforia ahead of time. Sources for models/figures: Abdomen model from class 2. CT Scan of an Abdomen from Wikipedia Skull model from Embodia 4. Skull diagram from Wikipedi 5. Genshin Impact Hu Tao model from MiHoYo 6. Genshin Impact Hu Tao icon from Genshin Impact Wiki Fig 3. Video Fig 4, Pre-recorded Presentation [5, 6, 7] 7. Model animations from Mixamo

