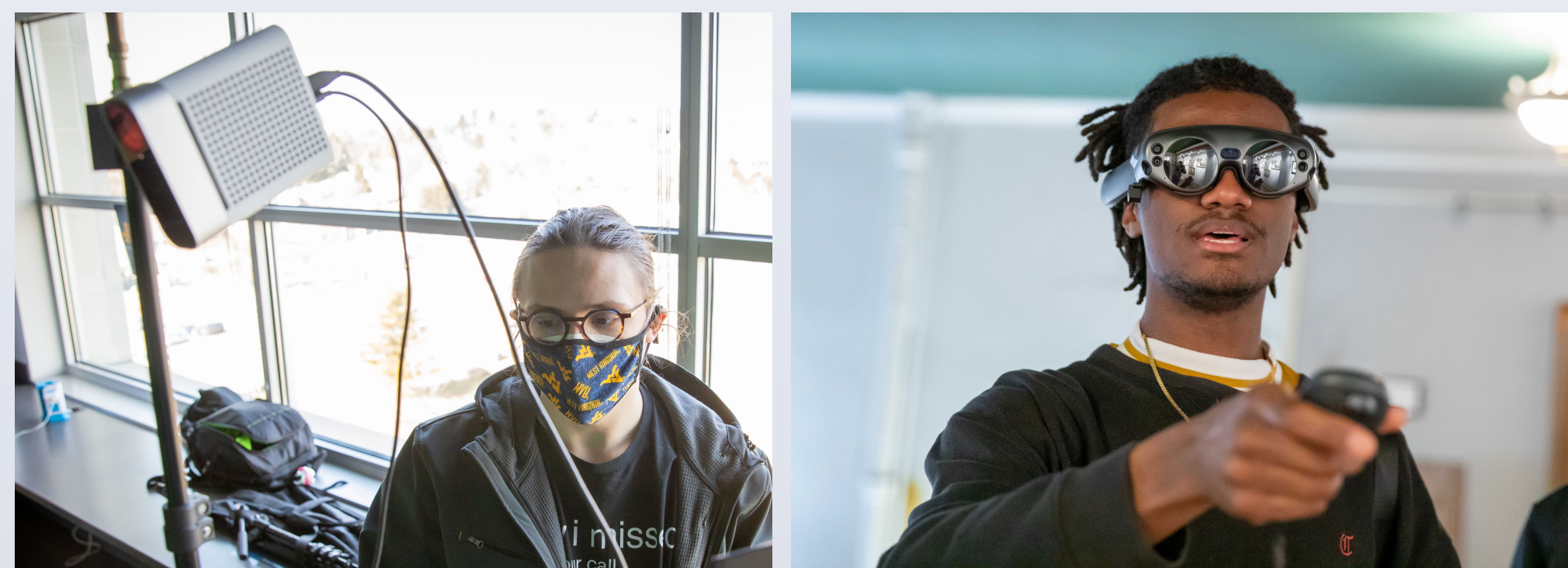


Mixed Reality and Volumetric Video

- Mixed Reality is a form of spatial computing and is the merging of digital/virtual information with real environments to create a new hybrid environment where digital objects interact with the real world.
- Volumetric video, commonly known as holograms, are three-dimensional animated recordings of real people and objects.
- Volumetric video can be displayed in mixed reality environments to create new experiences for nonfiction and fiction storytelling and research.

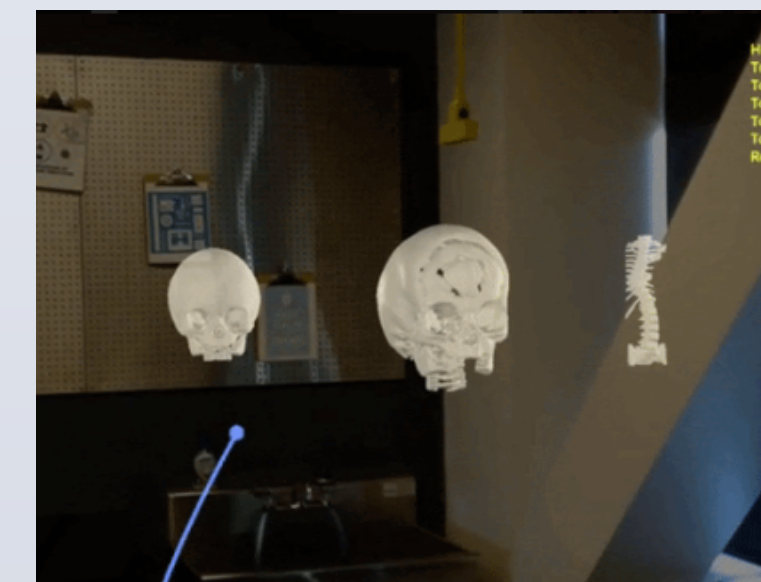


TIG Application and Proposed Outcomes

- Purchase of a Magic Leap mixed reality headset and Azure Kinect depth camera
- Headset and camera to be used for classes with students majoring in Journalism, Advertising/Public Relations and associated research
- Allows students to experiment with the new technology of volumetric video capture, spatial computing and mixed reality
- Classes to be impacted include Immersive Storytelling: ARVR and Visual Brand Storytelling
- Proposal was received and equipment purchased in the middle of the Fall semester 2019 and integrated into classes in early Spring 2020.

In the Classroom

- Visual Brand Storytelling students worked with the community of Point Pleasant, West Virginia in Fall 2019 and Spring 2020. During that time, they created multimedia content as part of an integrated branding campaign to boost the city's visibility as a tourist destination, and to enhance community pride. In addition to traditional video ads, commercials, photographs, printed brochures and other multimedia content, they also hosted several "Share Your Story" events where residents told of their favorite memories of Point Pleasant. These were captured in audio and in volumetric video, and the resulting captures were displayed using the Magic Leap headset at community events. More capture sessions were being planned but canceled due to COVID restrictions.
- Immersive Storytelling: ARVR students created captures in Spring 2020 classes, and got to experience their own recordings in the Magic Leap headset.
- In Spring 2021, students in an independent study class collaborated with students from Seville, Spain. The students from Seville purchased an Azure Kinect camera. Both groups of students worked collaboratively across the Atlantic to create augmented reality experiences using volumetric capture technology.



Collaborative Research

- Working with faculty at the Rockefeller Neuroscience Institute and graduate student in computer science, Prof. Smith created a mixed reality application for displaying digital DICOM models on the Magic Leap headset.
- The team also published an article in the March 2021 American Journal of Neuroradiology that tested the use of the Magic Leap headset in interventional procedures titled Teleproctoring for Neurovascular Procedures: Demonstration of Concept Using Optical See-Through Head-Mounted Display, Interactive Mixed Reality, and Virtual Space Sharing—A Critical Need Highlighted by the COVID-19 Pandemic.

Outcomes and Future Use of Tech



- Students in classes impacted by the Teaching and Learning Commons Technology Integration Grant were able to create new forms of storytelling that they would never have been introduced to in their classes without this opportunity.
- Community members in Point Pleasant, West Virginia were amazed by the technology, but also moved by seeing the stories of their neighbors in mixed reality. Participants shared memories of finding the love of their life, opening and running a business in a small town, their favorite teachers and other moving anecdotes.
- The technology also led to international collaboration with the University of Seville, Spain. This relationship will continue with study abroad trips starting in Summer 2022.
- The grant also enabled faculty-student research that was published in a respected national scientific journal.
- In short, this Technology Integration grant has been extremely important in expanding the scope of emerging technology use in teaching, storytelling and research at the Reed College of Media.

