

# Virtual Reality Technologies@UNM

Karl Benedict, Tim Castillo, Kevin Comerford, and Mary Wise

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Tim B. Castillo

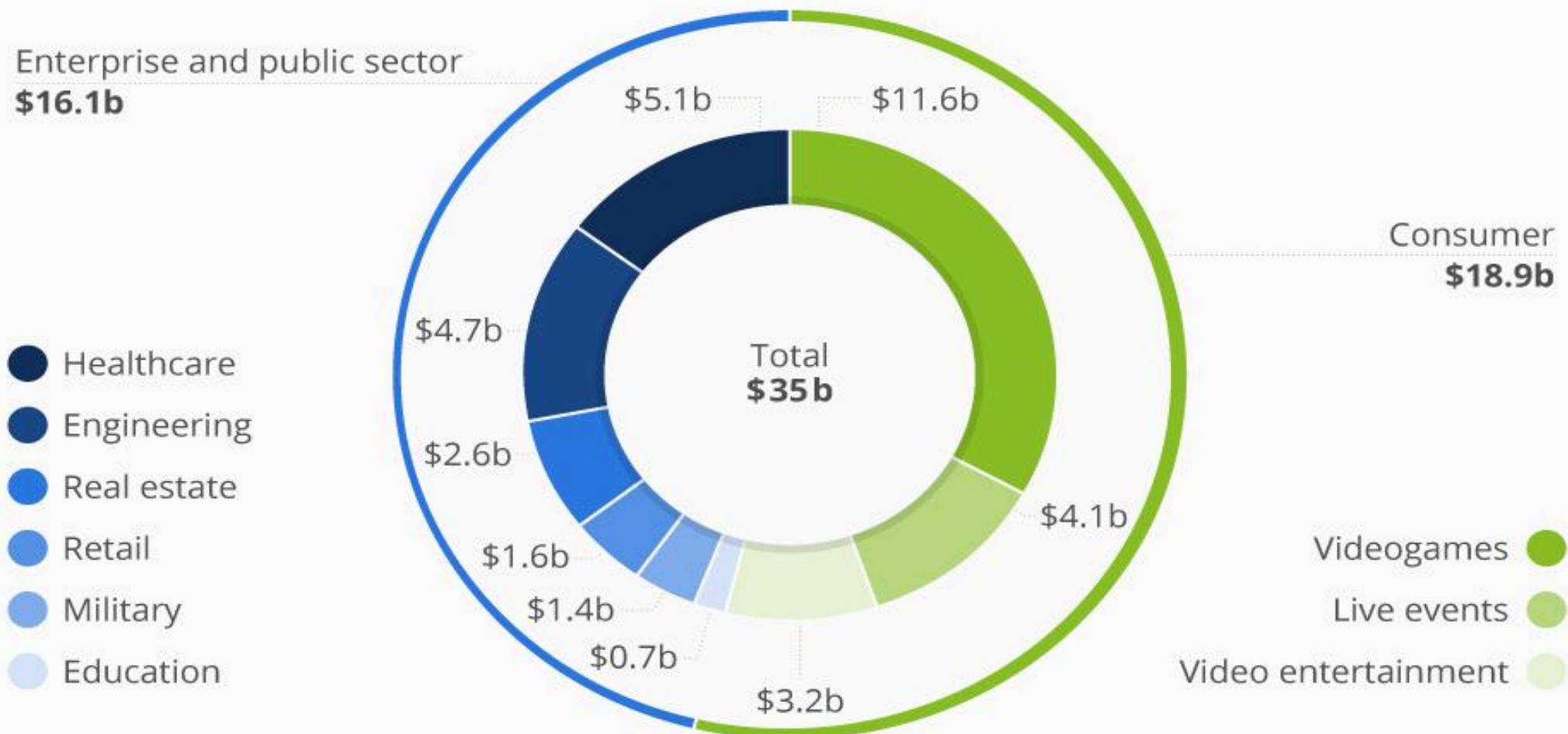
Associate Professor/Associate Dean of Innovation School  
of Architecture + Planning

# Emergent Technology for Designers

Arch 462/662 IFDM 491

# The Diverse Potential of VR & AR Applications

Predicted market size of VR/AR software for different use cases in 2025\*





Ready Player One

## Guest Innovators



**Brandon Garrett, AIA**  
Architect + Design Technology Leader  
Dekker/Perich/Sabatini

Brandon has over a decade of experience as an Architect and Technologist. He specializes in the adoption, implementation, and training of new applications in order to leverage the latest technology to enhance the design process and bring added value to clients. He leads the firm's Design Technology and Visualization team and enjoys keeping pace with the rapid rate of technological advancements. Brandon is currently overseeing development of custom software applications, Building Information Modeling (BIM), Virtual Reality (VR), Data-driven Parametric Design, Energy Analysis, Smart Building Sensors and Interactive/experiential design.



**John-Mark Collins**  
Founder/Creative Director  
StoryLab Inc.

John-Mark is a creative problem solver whose passion lies in using technology to augment the real world in beautiful and engaging ways. John-Mark received his BS in Computer Engineering (Minor in Electronic Art) and MBA from the University of New Mexico. In addition to technology, John-Mark has studied in both Art and Architecture and has participated in several public electronic arts exhibitions. He has worked with a variety of clients, including Coca-Cola, Starbucks, HP, Intel, several Smithsonian Institutions as well as Fermi, SLAC, and Sandia National Laboratories. Since early 2017, John-Mark has been pushing his new



**Felipe Mendoza**  
CEO  
Simian Apps, LLC

Research and develop augmented reality wearables and also develop software for them. We are dedicated to modernize various domains such as education, aviation, transport, heavy industry and defense industry through cost effective augmented reality applications. Our applications are designed to enhance the productivity and provide better user experience with real time analytics.

# Emergent Technology for Designers

## Arch 462/662 IFDM 491

VR video

State Fair Trip

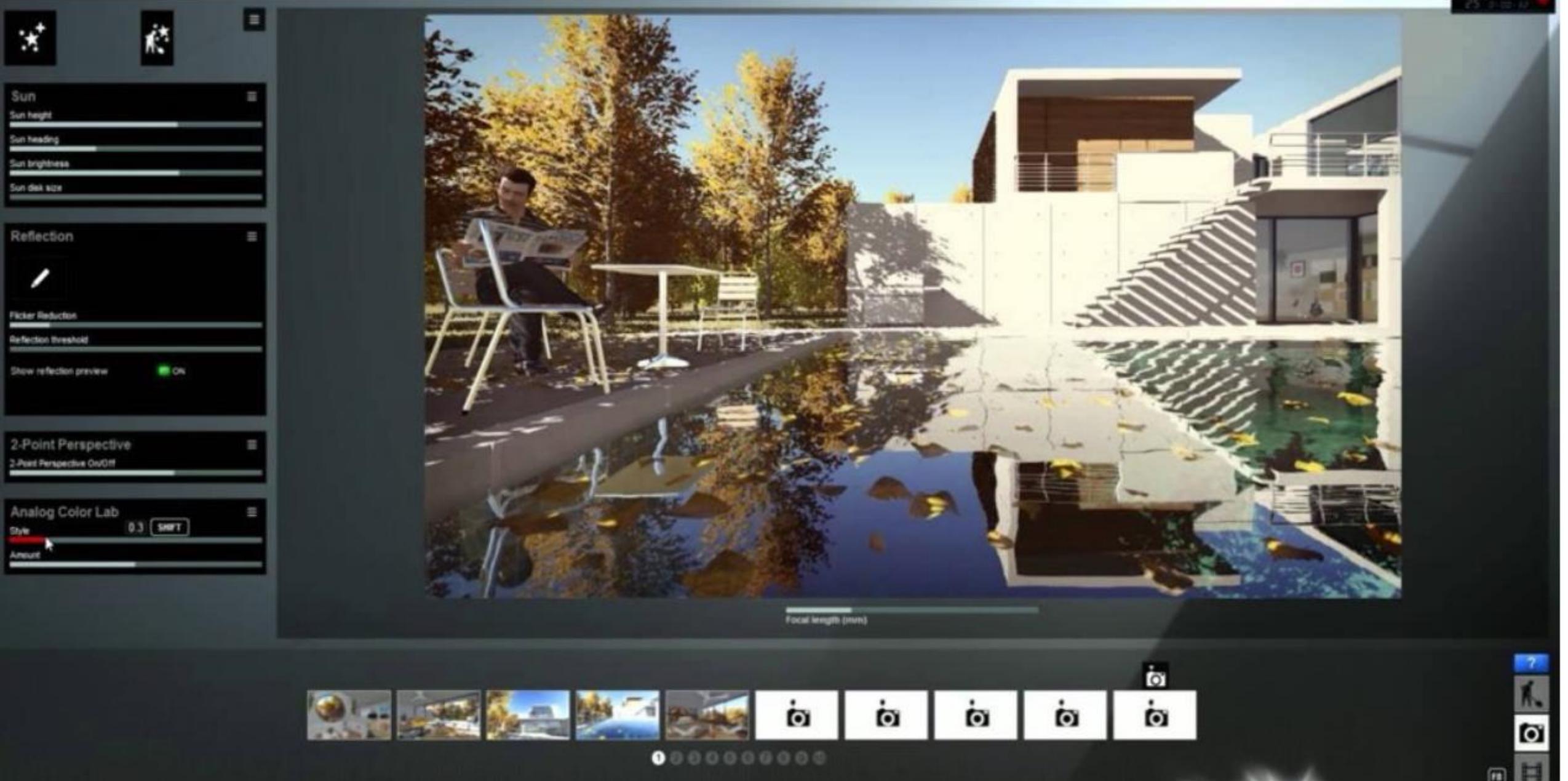


VR movie :: Frias Jaime - Master of Architecture student

<https://www.youtube.com/watch?v=b9NgbqGgZiY>

# VR Environments







Select an annotation



Modern Studio Apartment

## IN COLLECTIONS

**Rooms**  
Paul (Sketchfab)

139 ▷ 116

**Architecture**  
Studio3Axis

209 ▷ 67

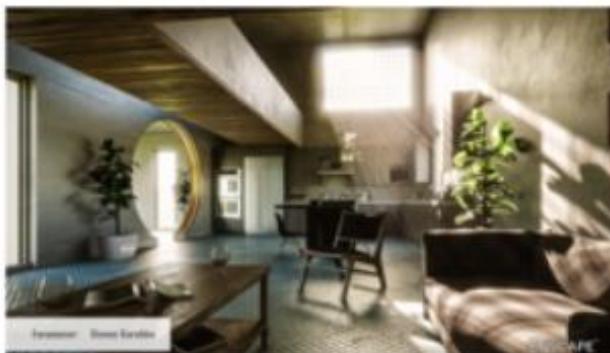
**Architecture**  
Bart

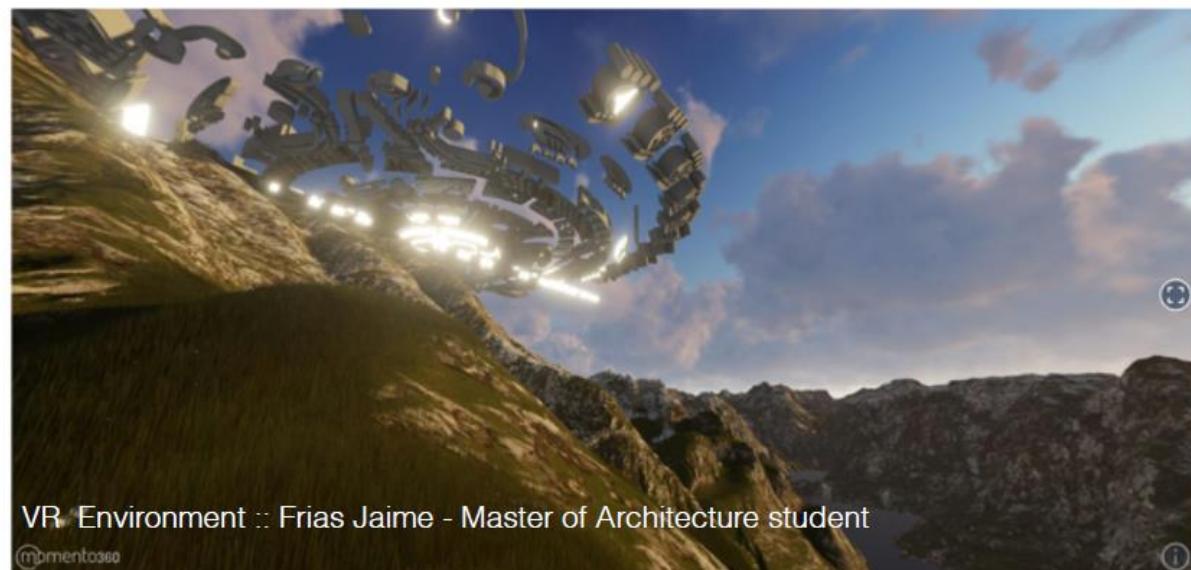
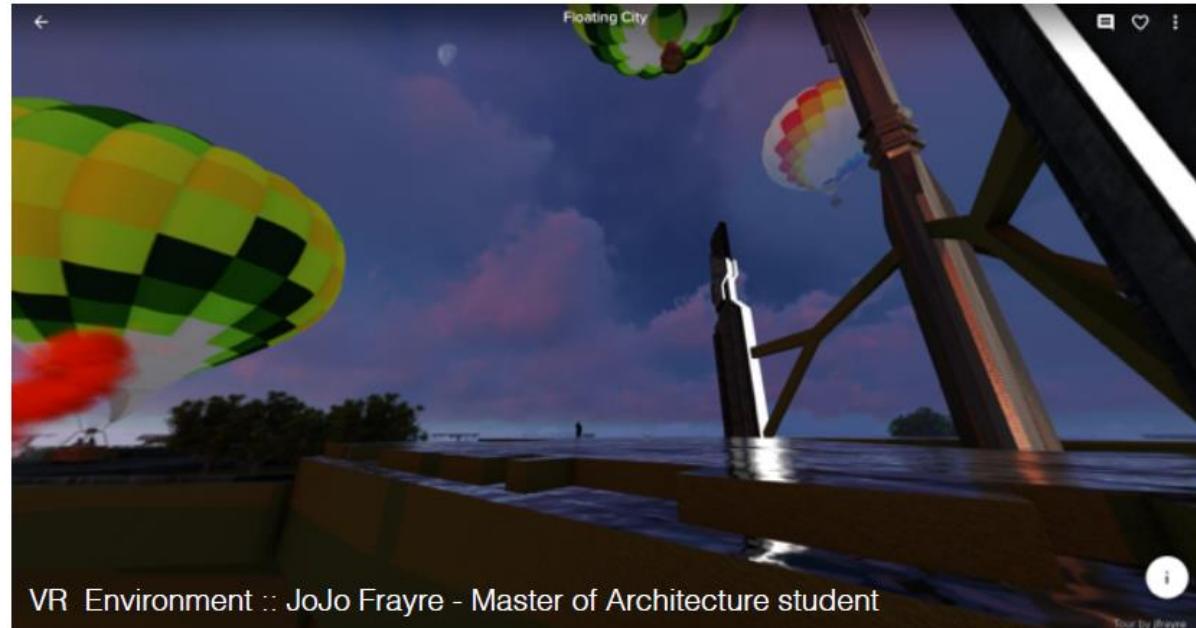
52 ▷ 26

## SUGGESTED MODELS

## Visualization Gallery

See what other architects achieve with Enscape!





VR Environments

Cultural VR

# Virtual Tours Made Simple

World's most hassle-free 360° VR publishing and panoramic tours authoring platform.

[CREATE TOUR](#)



Bullard St.



Broadway St.



St. Vincent Church



Interior St. Vincent



Interior 2 St. Vincent



Big ditch



SC Museum



Courthouse

Tour by hybrid\_e

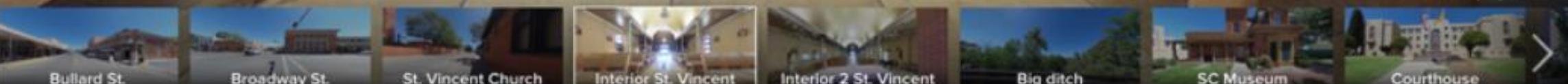


Round Me :: Silver City, NM

Silver City, NM - Interior St. Vincent  
Silver City, NM 88061, USA



Tour by hybrid\_e



Round Me :: Silver City, NM



<  
Church

Interior St. Vincent

Interior 2 St. Vincent

Big ditch

SC Museum

Courthouse

SC Bank

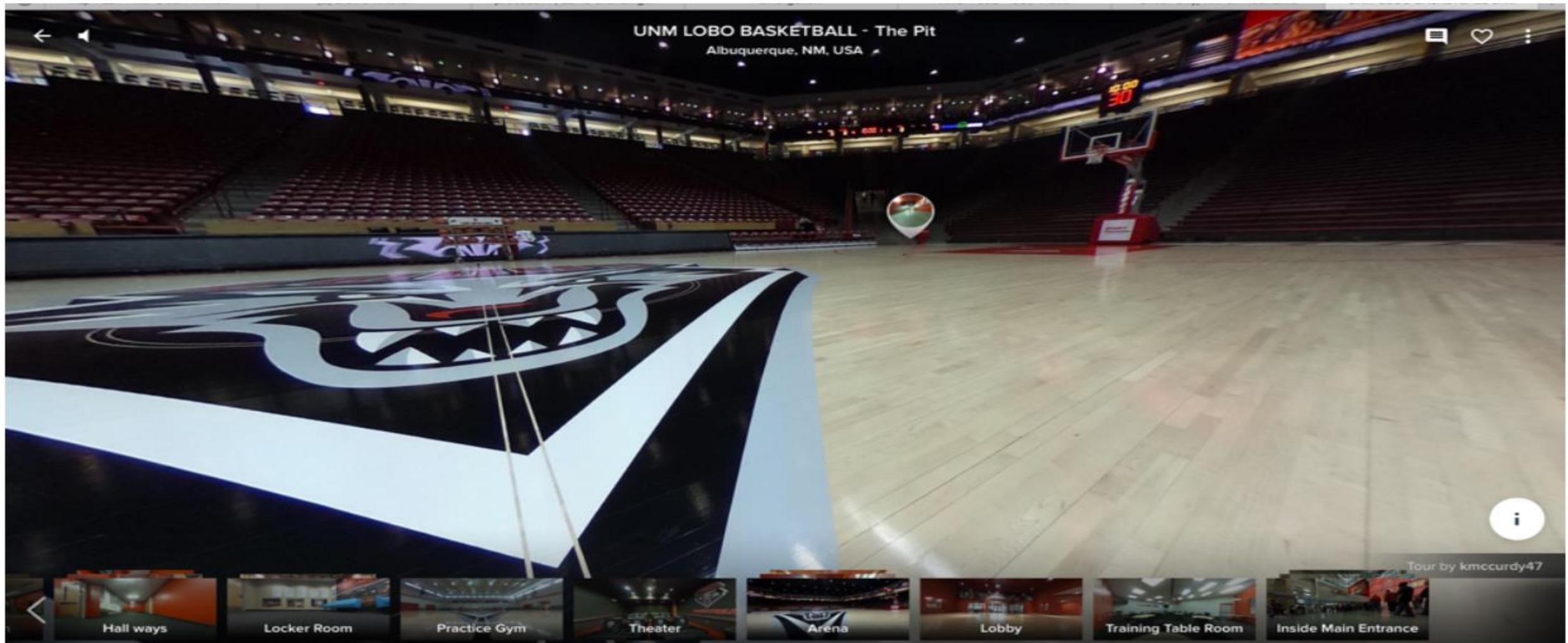
Murray Hotel

Murray Interior

>  
Yank

<https://roundme.com/tour/243535/view/704816/>

Round Me :: Silver City, NM

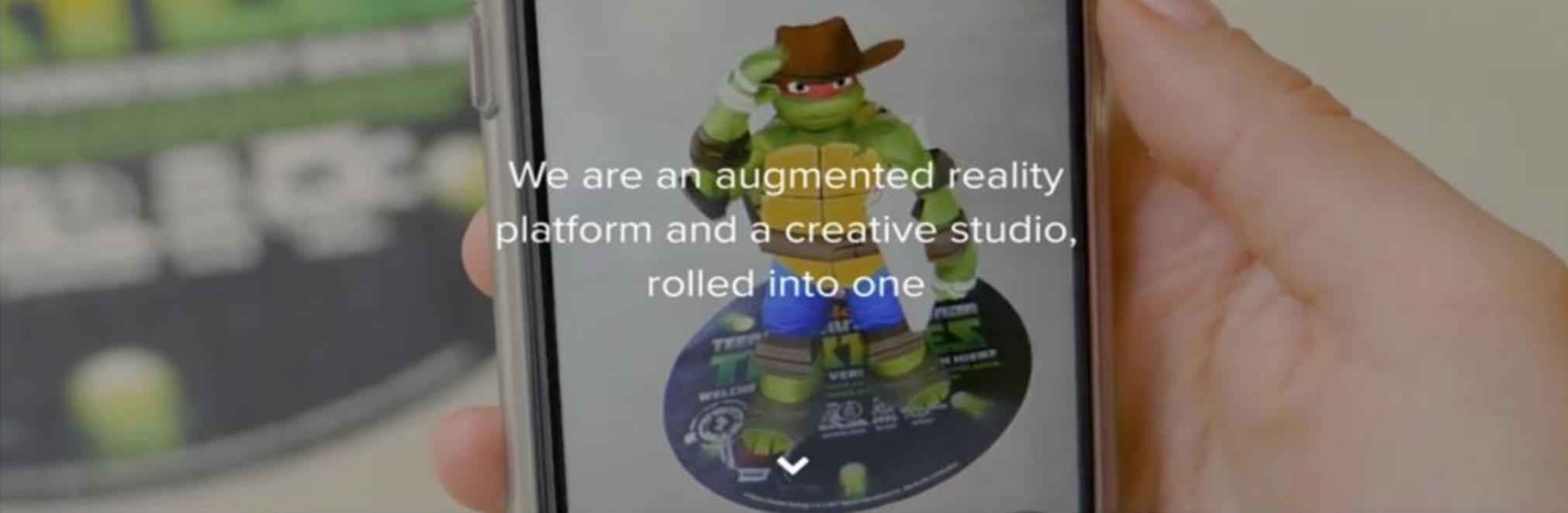


VR Experience :: Kurtis McCurdy – Bachelor of Architecture student

<https://roundme.com/tour/214783/view/633381/>

Round Me :: The Pitt

Cultural AR

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We are an augmented reality  
platform and a creative studio,  
rolled into one



Kimberly-Clark



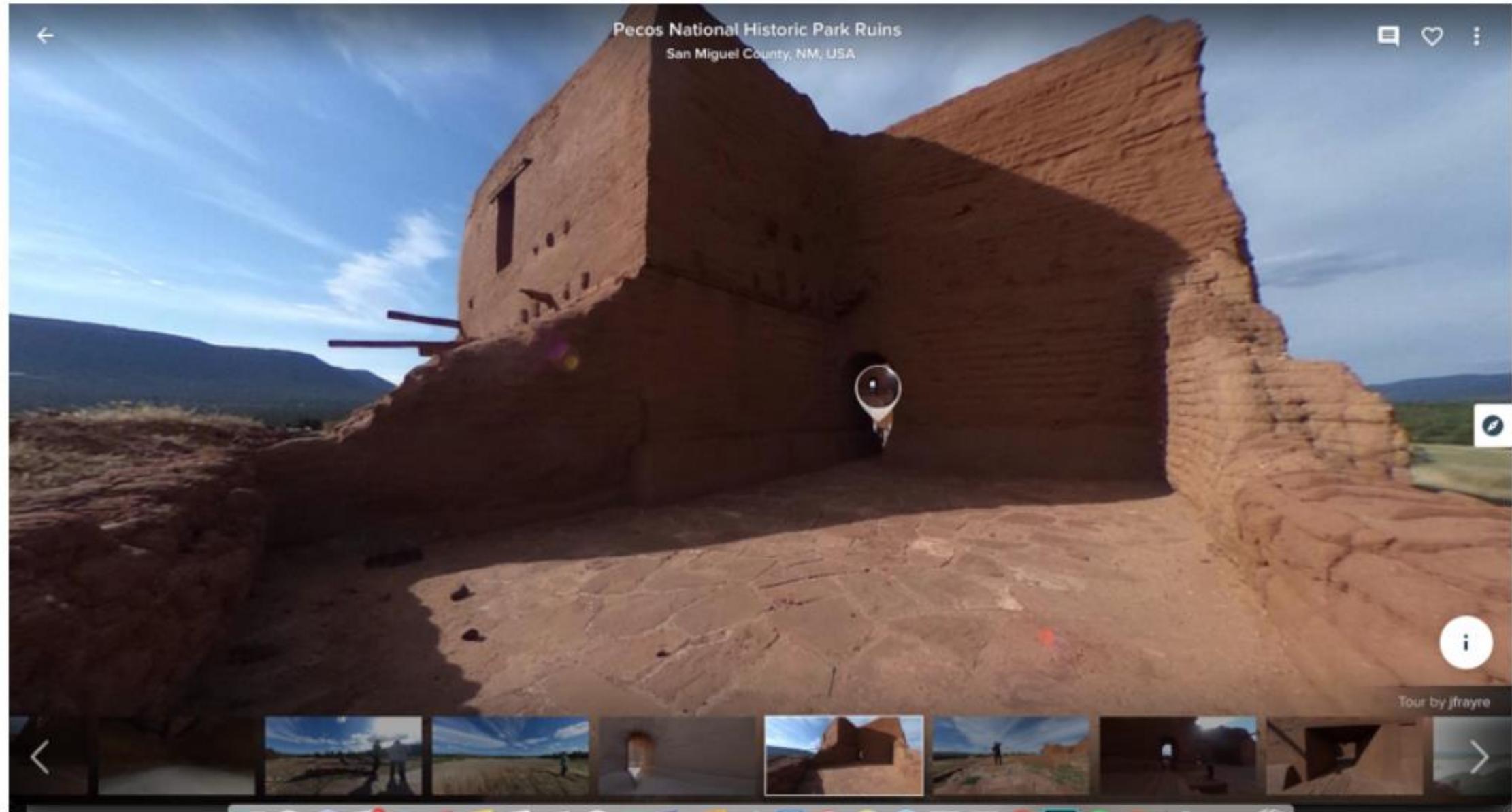
Hasbro



SHAZAM

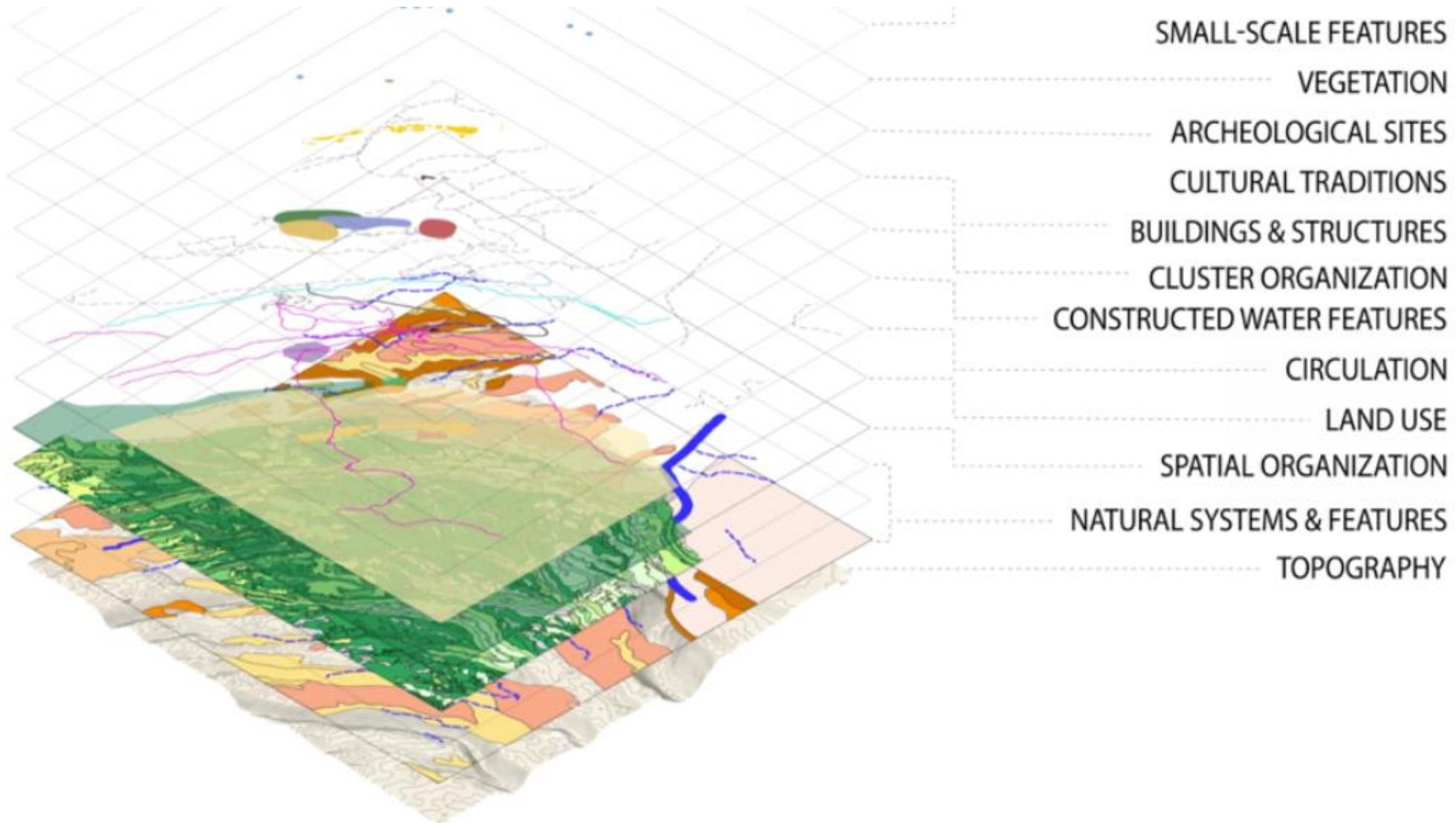


Zappar AR :: Silver City, NM



VR :: JoJo Frayre - MS Arch student

Zappar AR :: Pecos National Park Ruins, NM





**Macaw Bowl**

Photogrammetry AR bowl :: Ethan Ortega – Master of Museum Studies

Zappar AR :: Macaw Bowl : Maxwell Museum

# AR IN ARCHITECTURE



AUGMENT



Augment AR





## Get Ready for ARKit 2

Build unparalleled augmented reality experiences for hundreds of millions of users on iOS — the biggest AR platform in the world. With ARKit 2 on iOS 12, your AR apps can now be experienced by multiple users simultaneously, and resumed at a later time in the same state.

You can also incorporate real-world objects into your AR experiences, giving your users even greater immersive opportunities.



# DISC: VR for Preservation and Access

Kevin Comerford and Mary Wise

Digital Initiatives and Scholarly Communication,  
Zimmerman Library

# Introduction

- To your presenters: Kevin Comerford and Mary Wise
- To our interest in VR: DISC is interested in using VR to improve access to library resources and to digitally rendering cultural heritage sites.
- To the technology:
  - As we have seen, VR can be an umbrella term used to describe a plethora of digital experiences.
  - Categorize VR Experiences:
    - Immersive VR Experiences (In a headset)
    - Desktop VR



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Tour by kevco

Desktop VR:  
Second Life  
1920's  
New York



Total Credits: 0

# Desktop VR: ActiveWorlds



Total Credits: 0



Total Credits: 0

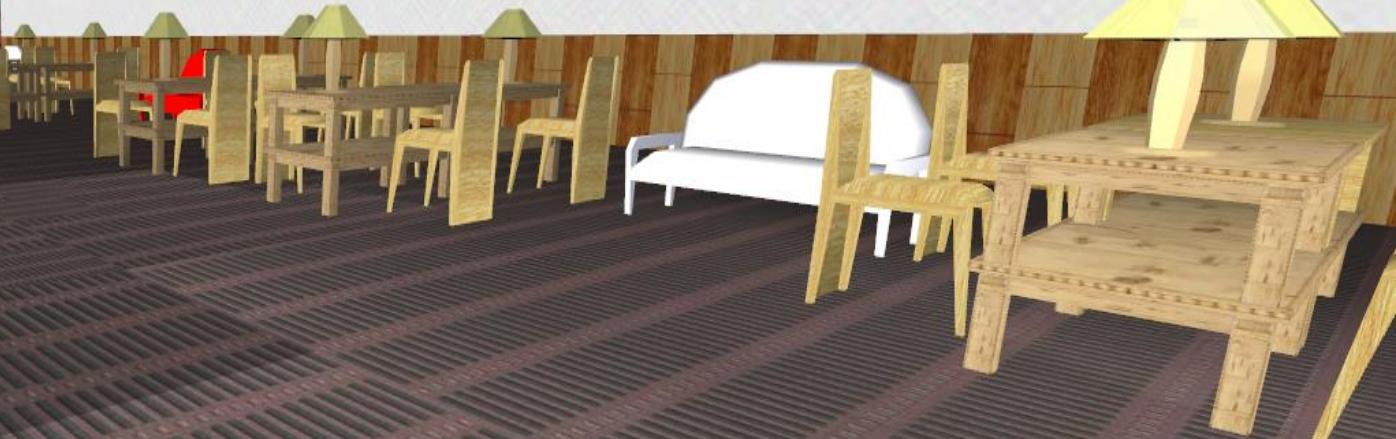
The  
Blessing  
Way

Listening  
Woman

The  
Ghostway

Skinwalkers

About  
The Tony  
Hillerman  
Portal

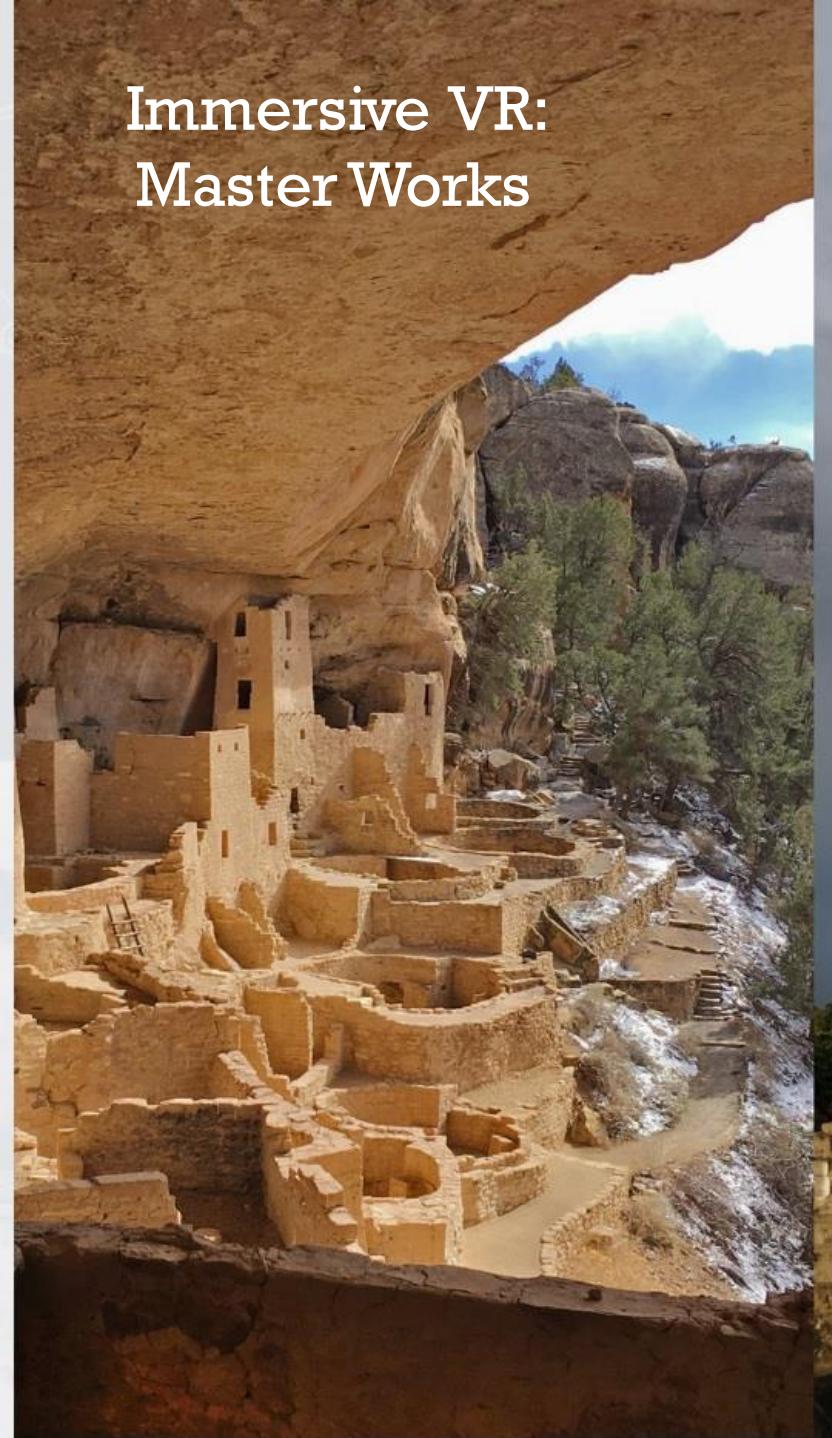


Total Credits: 0

# Desktop VR: ActiveWorlds: Van Gogh World



# Immersive VR: Master Works





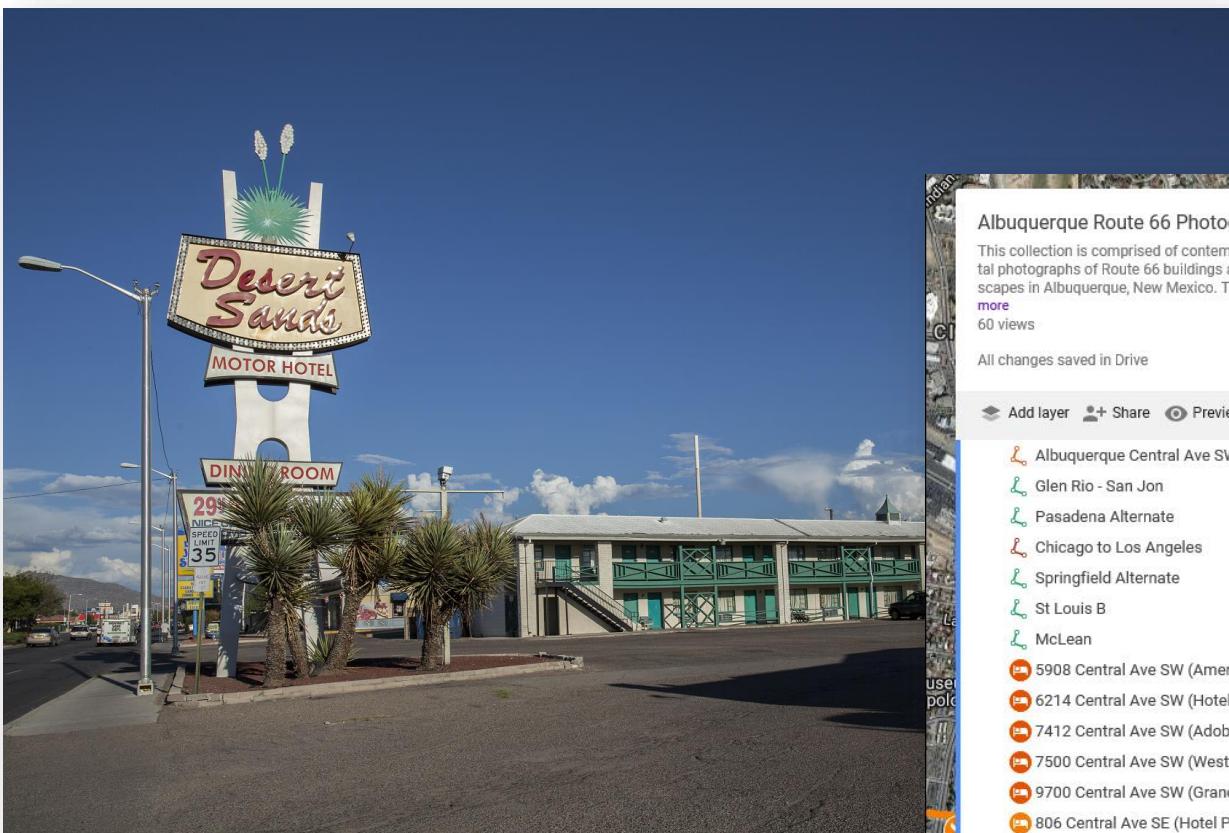
Immersive VR:  
Google Earth VR

# Google Earth VR



Click to add text

# Route 66 Immersive VR Project



Albuquerque Route 66 Photograph...

This collection is comprised of contemporary digital photographs of Route 66 buildings and roadscapes in Albuquerque, New Mexico. The collection includes:

60 views  
All changes saved in Drive

Add layer Share Preview

- Albuquerque Central Ave SW
- Glen Rio - San Jon
- Pasadena Alternate
- Chicago to Los Angeles
- Springfield Alternate
- St Louis B
- McLean
- 5908 Central Ave SW (Americ...
- 6214 Central Ave SW (Hotel...
- 7412 Central Ave SW (Adobe...
- 7500 Central Ave SW (Westw...
- 9700 Central Ave SW (Grandv...
- 806 Central Ave SE (Hotel Par...
- 3820 Central Ave SE (Premier...
- 5000 Central Ave SE (previou...**
- 6718 Central Ave SE (Luxury I...
- 7600 Central Ave SE (Pioneer...
- 7640 Central Ave SE (Best Ch...
- 8300 Central Ave SE (Bow an...

Route 66 Motel (previously Desert Sands Motor Hotel)  
5000 Central Ave SE  
Albuquerque, NM

Year: 2014  
Photo Credit: Donatella Davanzo  
PICT 2013-005. Albuquerque Route 66  
35.07761, -106.58879

Google My Maps

DISC work focuses on developing resources for library users. However, there are campus resources where students and faculty can go to get training on these resources . . .

# VR You Can Use

Karl Benedict

# Centennial Science and Engineering Library





# Learning and Collaboration Space

## DEN 1

***High End Workstations***

***Specialized Software***

- ~ Qualitative Analysis ~
- ~ Statistical Tools ~
- ~ Content Development ~
- ~ GIS ~
- ~ Software Development ~

***Reserve for up to 3 Hours***

## DEN 2

***Flexible Workshop Space  
for up to 16***

***Specialized Presentation  
Software***

***Audio & Video Capture  
and Web Meeting Capacity***

***Large 4k Display***

***HTC Vive VR System***

***Reserve for up to 3 Hours***

Started  
Construction in  
Fall 2016



# Grand Opening in February 2017

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## Virtual reality, other features now available at Centennial Library

By Elizabeth Sanchez Published 02/26/17 5:15pm



At an open house earlier this month, UNM's Centennial Library unveiled several permanent new features in two new working and collaboration spaces that include VR platforms, among other things.

The features are: geographic information systems; Mac, PC and Apple TV presentation platforms; and the HTC VIVE virtual reality platform, according to Karl Benedict, director of Research Data Services in the College of University Libraries and Learning Sciences.

Data Curation Librarian Jon Wheeler said analysis workstations provide applications with many common platforms for quantitative analysis, geospatial analysis and coding.

The new features take up a space previously occupied by an office and computer lab with limited access. Wheeler said that through "opening up both rooms and refreshing the technology," they have provided



By John Acosta

Derek Luna, library technical assistant and junior civil engineering major at UNM, plays a game on the new VR system inside Centennial Library. Luna says that, aside for gaming purposes, he plans to use VR to view his architectural designs.

students with "novel ways to interact with library and information resources."

# Special Events – Virtual Tours



# Special Events – Content Creation



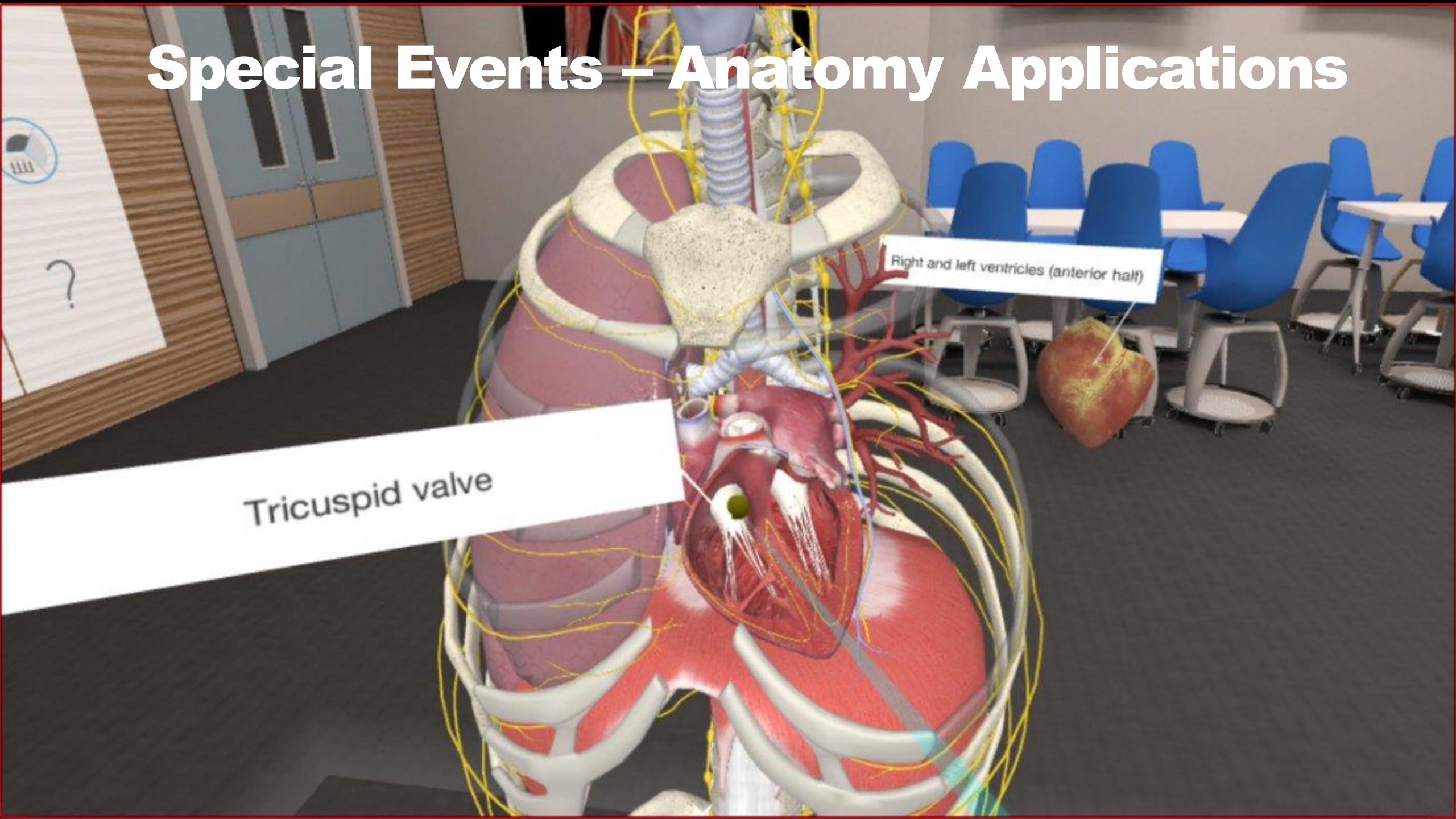
# Special Events – Content Creation



UNREAL ENGINE 4 – DX11 TESSELLATION

Unreal Engine 4 - DX11 Tessellation by Joshua | Ezzell CC By-ND 2.0

# Special Events – Anatomy Applications



Reserve DEN 2  
<https://libcal.unm.edu>

The University of New Mexico UNM A-Z StudentInfo FastInfo myUNM Directory  🔍

**UNM UNIVERSITY LIBRARIES**

[University of New Mexico](#) / LibCal

**Rooms & Spaces**

[Reserve a Group Study Room](#) || [Reserve a Locked Room](#) || [Reserve a Locker](#) || [Graduate Student Commons](#) || [Find Quiet Spaces](#) || [Learning Commons](#) || [Indigenous Nations Library Program Spaces](#)



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# Questions? Comments? Concerns?

Karl Benedict: [kbene@unm.edu](mailto:kbene@unm.edu)

Tim Castillo: [timc@unm.edu](mailto:timc@unm.edu)

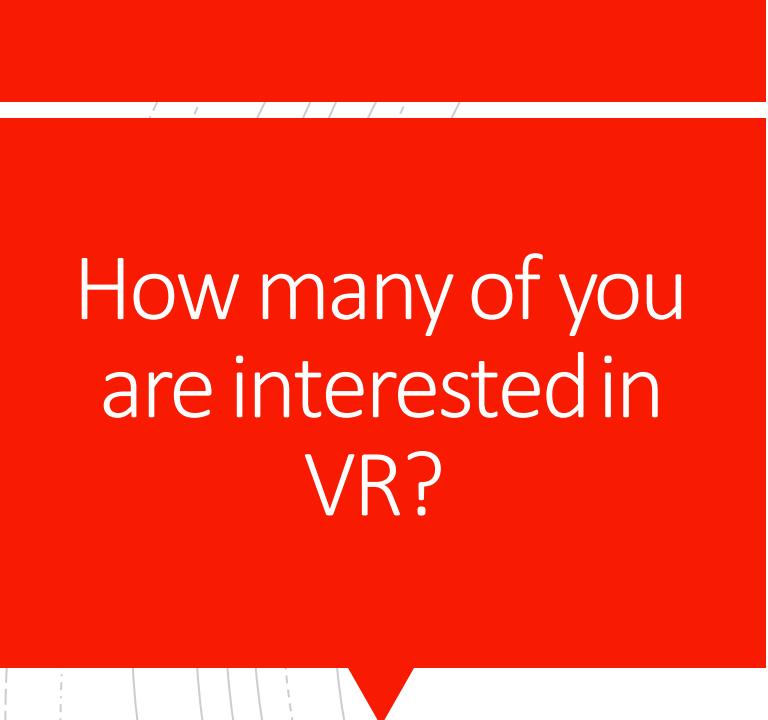
Kevin Comerford: [kevco@unm.edu](mailto:kevco@unm.edu)

Mary Wise: [mwise@unm.edu](mailto:mwise@unm.edu)

# VR Open House in Zimmerman Library

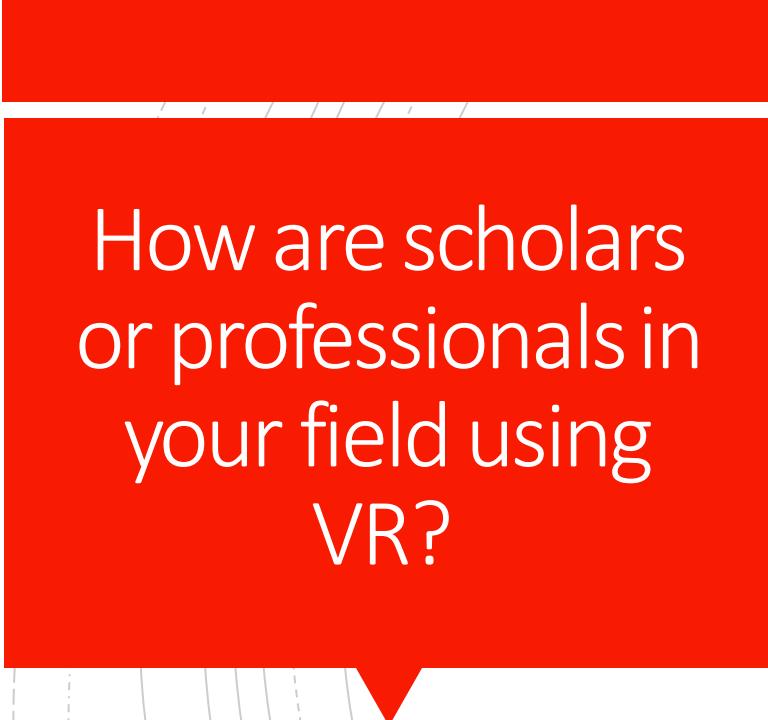
- **WHAT:** Come experience a hands-on demo of the Oculus Rift in the DISC workroom in Zimmerman Library
- **WHEN:** Thursday, June 7th from 1:30 p.m. to 3:30 p.m.
- **WHERE:** DISC Workroom (Basement of Zimmerman Library; take the stairs or elevator in the main lobby to the basement and we are the offices directly in front of you)

# Audience Questions



How many of you  
are interested in  
VR?

- **Answers:**



How are scholars  
or professionals in  
your field using  
VR?

- **Answers:**



What specific  
uses of VR  
interests you?

- Answers: