



BALL STATE UNIVERSITY

INSTITUTE FOR DIGITAL INTERMEDIA ARTS

COLLEGE OF ARCHITECTURE AND PLANNING

2022.2

UPCOMING

IDIA Lab is creating a selection of our digital heritage projects into a collection for catalog distribution sponsored by our partner, the [Elumenati](#). These virtual simulations are intended for immersive displays in museums and planetariums.

We are creating new virtual settings to hold remote VR meetings on our new [Meet3D](#) platform, a virtual collaboration space that brings people together to share, learn, and work. Private or public spaces can be joined by any group on demand.

We have been developing new techniques in Unity 3D on simulating virtual photorealistic vegetation for our heritage projects - working with experts to identify site specific species that will be represented in the simulations.

College of Architecture and Planning's IDIA Lab designs technological innovation in the arts, sciences, and humanities. The Lab engages students, staff, scholars and clients in collaborative projects including extended reality, metaverse design, 3D animation, games, virtual and augmented reality and mobile applications. This newsletter includes updates on current IDIA Lab projects including, a virtual elementary school platform for a Hawaiian grade school, an immersive virtual reality exhibition of the Angel Mounds site for the Indiana University Museum of Archeology and Anthropology, a virtual collaboration simulator for Rutgers University, a multi-user simulation for the International MoonBase Alliance, and an update on our NEH grant project with the Applied Anthropology Lab.



HAWAIIAN VIRTUAL ELEMENTARY SCHOOL

Maryknoll Catholic Elementary

IDIA has been selected to design a virtual school platform - creating a digital twin of [Maryknoll Catholic Elementary](#) in Honolulu, HI. The remote learning platform will support several hundred students in a host of various grade classrooms. Students and teachers will be able to choose avatars to represent themselves as they interact with this hybrid community setting. Features will support in world learning management systems, presentations, auditorium screenings, presentations, online curriculum delivery, assessment, streaming live web-cam lectures, screen sharing, internal chat, voice communication, assignment dropboxes, interactive whiteboard, email and other virtualized smart classroom technologies.

Maryknoll is Hawaii's largest coed Pre-K–12 Catholic private school, each student receives personalized instruction and guidance to develop the knowledge, skills, and character to participate in a global society. Students design their own customized academic and extracurricular pathways that combine classes, clubs, sports, internships, and international experiences.



VIRTUAL MUSEUM EXHIBITION

Newark Earthworks

IDIA has designed and delivered a permanent virtual reality exhibition for the [Ohio History Center](#), restoring ancient ceremonial mounds sites of the native [Woodland cultures](#). Visitors can interact and learn about the site itself, as well as solar and lunar alignments that are reconstructed using a proprietary IDIA technique employing data from [NASA's Jet Propulsion Laboratory](#). The virtual experience brings to life the restored sites of [Newark Earthworks](#) and [Fort Ancient](#) - both part of the Ohio application for recognized status as a [UNESCO World Heritage Site](#).

The exhibit uses 4 screens and projected surfaces to create a mini virtual CAVE environment - providing the visitor with an expansive immersive experience without having to wear goggles. Interactions are engaged via a touch screen with interfaces to change position throughout the site to preset significant solar and lunar alignments, learning about each celestial event and entering any date or time.



VIRTUAL MOONBASE

International MoonBase Alliance

Ball State University's IDIA Lab is continuing to develop a multi-user virtual world for the International Moon-Base Alliance - a global association of leading scientists, educators, and entrepreneurs from space agencies and industries worldwide to advance the development and implementation of an international base on the Moon.

Their priority is to create an action plan that will culminate with the building of MoonBase prototypes on Earth, followed by a sustainable settlement on the Moon. Building on discussions and recommendations from the Lunar Exploration and Analysis Group (LEAG), the European Lunar Symposium, the International Space Development Conference, the NewSpace Symposium, the International Astronautical Congress (IAC).

IDIA 's virtual lunar habitat simulator to is a collaborative platform for international space scientists to communicate and collaborate on the design of the next steps in lunar exploration.



EXTENDED REALITY WORKSHOPS

This year, Architecture graduate student Derek Bohm, continues to offer free workshops on various approaches to the use of Extended Reality (XR) including Virtual Reality, Augmented Reality and 3D Visualization. Beginning level workshops will be held in the Sim Lab (AB023) on the ground floor of CAP Thursdays 1-4 and Fridays 8:30-3:30 but also can be arranged in advance for individual classes.



IMMERSIVE MUSEUM INSTALLATION

IDIA is designing a permanent immersive virtual exhibition for the new [Indiana University Museum of Archeology and Anthropology](#) with our partner [Elumenati](#). The domed virtual reality theater is approximately 25ft in diameter - employing 4K laser projectors. This keystone exhibit will center on the archeology of Angel Mounds and engaging rich layered media to interpret this significant heritage site.



VIRTUAL ESCAPE ROOM

The BSU College of Health received funding from Information Technology to contract with IDIA Lab to develop a virtual multi-user escape room. The simulation employs innovative learning strategies such as problem-based, immersive learning, role play, and game principles to improve teamwork, communication and leadership. The multi-user virtual escape room will be released in the Fall of 2022.



NEXUS SUMMIT 2022

Two of IDIA Lab's current health profession simulations were presented at the [2022 Nexus Summit](#) in Minneapolis, MN. The BSU College of Health Escape Room project and our Rutgers College of Health Professions TeamSTEPPS simulator were both presented during the conference. The Summit is planned and implemented by The National Center for Interprofessional Practice and Education.

TWEETS

- We enjoyed hosting our technology partner, the Elumenati @elumenati and staff from the Children's Museum of Indianapolis @TCMIndy this week! #cave #explore #experience
- New user experience [video](#) showcasing our 3D printed and AR museum exhibition and app of Buffalo Bill's Wild West show for the Buffalo Bill Center of the West #augmentedreality #xr
- Excited to share our [Shackleton crater animation](#) with @QuantaMagazine #shackletoncrater #animation #nosunlight #water #ice



COLLABORATIVE HEALTHCARE



DEEP MAPPING PROJECT

[Rutgers University](#) has contracted with BSU IDIA Lab to develop an Interprofessional Education (IPE) simulator that allows practitioners to improve upon effective collaboration. Team Strategies and Tools to Enhance Performance and Patient Safety ([TeamSTEPS®](#)), has been validated in decades of research, providing learner assessment, improved team efficiency, and decreased barriers to quality and safety.

[Deep Mapping Middletown](#) is an initiative sponsored by two units at Ball State University, the Center for Middletown Studies and the Institute for Digital Intermedia Arts. It will create a platform for intensive, spatially-driven investigations of Muncie, Indiana, that employ techniques derived from literary study, history, anthropology, geography and art. Our ultimate aim is to produce a detailed digital depiction of place.



VIRTUAL HERITAGE OHIO



INDIANAPOLIS HIGH SCHOOL TOUR

IDIA has created a virtual simulation that interprets Mounds culture earthworks in their era of construction. The sky is simulated with accurate celestial bodies to allow users to view the moon and sun as they appeared almost 2000 years ago. The [project](#) was a collaboration with the [BSU Applied Anthropology Lab](#), [The Works](#), the [Ohio History Connection](#), with support from several federally recognized [American Indian tribes](#).

We enjoyed hosting a group of high school students from [Project Stepping Stone of Indiana](#) this summer - showcasing some of the extended reality projects that we produce here in the lab. Project Stepping Stone of Indiana (PSS) is a free program that helps Indiana's Latino high school students prepare for college and beyond. PSS is a program of the Escala Foundation, a 501(c)(3).

ABOUT IDIA

The Institute for Digital Intermedia Arts at Ball State University explores the intersections between the arts, sciences and technology. Scholarly, creative and pedagogical projects investigate extended reality including virtual reality, metaverse design, augmented reality, mobile, visualization and 3D simulation. The lab's staff, faculty and students develop collaborations in partnership with a host of international clients in this innovative studio initiative developing projects at the forefront of emergent media design.