IDIA
L A B
BALL STATE UNIVERSITY

INSTITUTE FOR DIGITAL INTERMEDIA ARTS
COLLEGE OF ARCHITECTURE AND PLANNING

UPCOMING

IDIA is working on a phase two of our digital twin of Maryknoll Catholic Elementary, Hawaii's largest PreK–12 Catholic private school. The remote learning platform supports hundreds of students in and online school experience.

IDIA Director, John Fillwalk is currently coordinating the donation of media art from the estate of Hans Breder to a dedicated Archive at the Museum Ostwall in Dortmund, Germany. Included in the donation are several works by Ana Mendieta.

IDIA is installing a permanent virtual reality exhibition for the new Indiana University Museum of Archeology and Anthropology with our technology partner Elumenati, creating an interactive immersive experience of the Angel Mounds site in Southern Indiana.

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, serious games, VR, augmented reality and mobile applications. This newsletter contains updates on current IDIA Lab projects including: the hosting of an upcoming national extended reality conference, a national award for our virtual escape room project, an upcoming virtual courtroom simulator, a virtual elementary school platform, a large-scale immersive virtual reality archeology exhibition, a virtual collaboration simulator for Rutgers University, a paper publication and an international extended reality journal invitation.


BSU HOSTS XR CONFERENCE

IDIA Lab was invited by the Campus Alliance for Advanced Visualization to host their annual conference (CAAV) in Fall 2023 at the College of Architectures and Planning. The CAAV is a nonprofit organization that promotes the capabilities for use of extended reality technologies, such as CAVE-style immersive VR systems, video walls, headsets, and advanced visualization software employed in research, learning and public engagement.

CAAV's purpose is to act as an information resource to worldwide higher education - focusing on immersive visualization platforms, advanced video screen formats, visualization software and issues of sustainability and operation for high tech visualization facilities.

INTERACTIVE ART AT CAP

IDIA is designing a series of extended reality artworks that will be installed in the atrium of the College of Architecture and Planning. The installation allows passers-by to interact using various modes including motion, voice, and gesture to shape the compositions. The works employ sensors, sound and programming to create dynamic experiences.
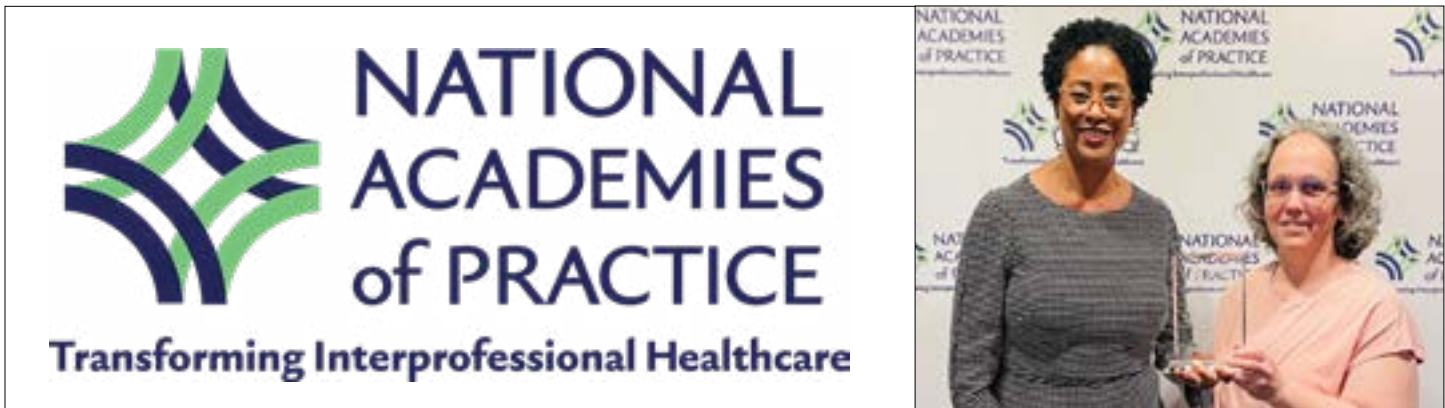
NATIONAL AWARD: VIRTUAL ESCAPE ROOM

The BSU College of Health and CAP's IDIA Lab were honored with a national award for their collaborative virtual escape room project. The serious game, "The Case of the Kidnapped Healthcare Professionals: Virtual Escape Room" was selected to receive the 2023 Creativity in Practice and Education Award from the National Academies of Practice (NAP). BSU's Lori Porter accepted the award on behalf of the project team Karrie Osborne, PhD, RN, Blair Mattern, John Fillwalk, IDIA staff and Katherine Berryhill for their work in developing the project.

Escape rooms employ innovative learning strategies such as problem-based immersive learning, role-play, and game principles to improve teamwork, communication and leadership. Nationally, health profession curricula are beginning to explore the use of escape room experiences as innovative pedagogy. Escape rooms challenge individuals to collaboratively explore new content, work as a team to discover clues, solve puzzles, and accomplish interactive tasks in a limited amount of time.

VIRTUAL COURTROOM SIMULATOR

IDIA is collaborating with BSU's Brandy and Greg Rocheleau from the Department of Criminal Justice and Criminology on the production of a Virtual Courtroom. The project, funded by BSU's Women of Beneficence, is a program designed to allow students in designated criminal justice classrooms to participate in courtroom simulations through the use of avatars to facilitate knowledge and empathy as well as practice decision-making skills in a courtroom setting.

One of the main purposes of this project is to give criminal justice students an opportunity to practice ethical decision-making skills in the field of criminal justice. It also helps students develop empathy for vulnerable populations so students become socially-responsible professionals. IDIA is designing a multiuser virtual simulation where students can engage via avatars and communicate in voice, chat, video or whiteboard. The facilities will include a courtroom, deposition room, classroom and even an accurate digital twin of the Supreme Court!
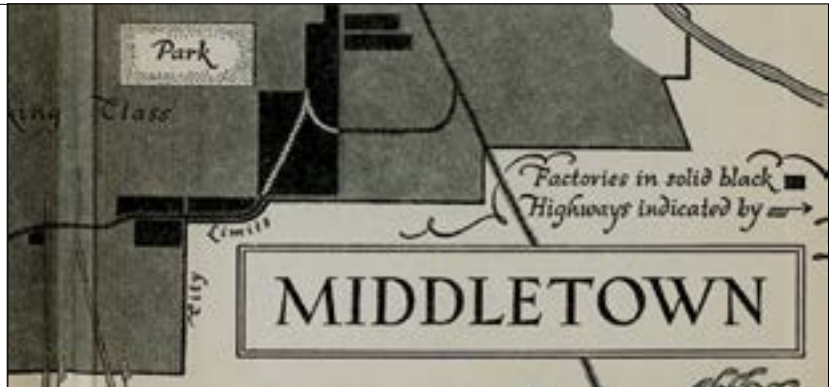
GIS PAPER: DEEP MAPPING

BSU's James Connolly, Director, Center for Middletown Studies and John Fillwalk, Director, IDIA Lab presented their joint paper at the 30th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems in Seattle, WA. This paper explored innovations in visualizing data in immersive 3D environments associated with the newly launched Deep Mapping Middletown project. Lead by Connolly and Fillwalk, the project consists of a team of scholars and library scientists from several institutions producing deep maps based on the extensive archive created by the century of social research focused on Muncie, IN.

https://dl.acm.org/doi/abs/10.1145/3557919.3565815
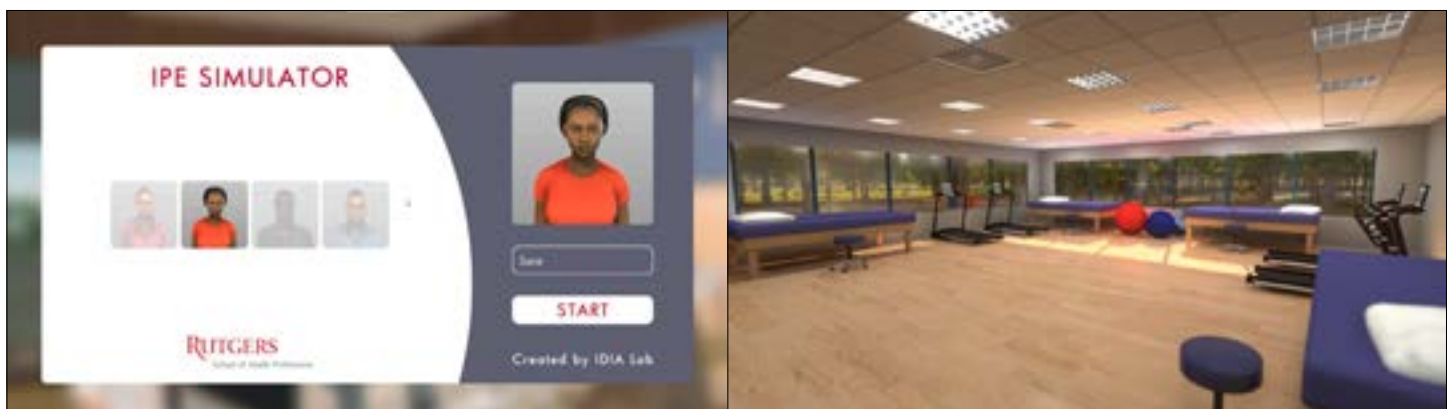
RUTGERS HEALTHCARE SIMULATION

IDIA is designing an interactive virtual training simulator for Rutgers University's School of Health Professions. The project immerses students within TeamSTEPPS, Team Strategies and Tools to Enhance Performance and Patient Safety. Developed by AHRQ, the Agency for Healthcare Research and Quality, TeamSTEPPS is an interprofessional communication framework providing interdisciplinary collaboration and teamwork tools aimed at optimizing patient outcomes by improving communication among healthcare professionals. It is AHRQ's signature curriculum to improve patient safety by training health care teams to communicate and practice effective teamwork. TeamSTEPPS trains staff in teamwork skills to lead medical teamwork improvement initiatives in an organization, from initial concept development through sustainment of positive changes

Students will learn best practice interprofessional communication strategies and apply them in lab-based scenarios in a single-player simulator created in the 3D game engine of Unity. The experience is designed with branched dialogue trees to provide decision making opportunities to assess learned concepts as they are applied to various healthcare scenarios. The project was recently presented at the National Academies of Practice (NAP) annual conference.

VIRTUAL BSU FIELD TRIP

IDIA worked with BSU's Qiannong (Chan) Gu, Chair of Information Systems and Operations Management to create an immersive virtual field trip. The wearable, Head Mounted Display experience allows students to virtually tour an off-site facility that typically would be visited physically. The interactive 360° tour illustrates the potential for efficiently and effectively creating a compelling experience using extended reality.

INTERNATIONAL XR JOURNAL

IDIA Director, John Fillwalk was invited to serve as an editor for Frontiers in Virtual Reality - a London-based international journal publishing peer-reviewed research across extended reality topics. This interdisciplinary open-access journal disseminates scientific knowledge and discoveries in extended reality to researchers across academia, industry, and the public worldwide.

TETRIS MOVIE

Congratulations to our friend Henk Rogers on his biopic on Apple TV, telling the story of his securing the rights for Tetris, during the era of the Soviet Union. Henk has previously donated software technology rights to Ball State valued at over $10 million dollars for his virtual world platform, Blue Mars. Story here. Henk founded The Tetris Company and is an active advocate for the environment and space exploration.

MOTION CAPTURE GUEST ARTIST

IDIA collaborated on motion capture workflows with Leraldo Anzaldua, an Assistant Professor of Theatre, Drama, and Contemporary Dance at Indiana University. Prof. Anzaldua is a voice-over anime actor, fight director, and motion capture performer for international film and video games. IDIA worked with Clark Dickin and BSU's Biomechanics Laboratory to capture the raw motion data, that we applied to a 3D character.

TWEETS

- IDIA welcomes David Chen as our new intern! David is student at the Indiana Academy and is studying extended reality, 3D modeling, animation and game engine workflows with our lab while he works on a few of our contracted projects.

- IDIA Lab is under contract with the US Department of the Interior to design extended reality applications for the Mesa Verde National Park. We are developing geolocative augmented reality solutions to bring traditional museum visitor experiences to life using mobile devices.

PLANETARIUM SHOW: NEH GRANT

IDIA Lab's NEH project partner, The Works, a planetarium and science museum, showcased research from our Newark Earthworks National Endowment for the Humanities grant, written in collaboration with BSU's Applied Archeology Lab. The simulation represents the site in the year 400 CE, exploring the night sky as it appeared during the time of the Hopewell - representing the celestial alignments at the Newark Earthworks.

HIGH PERFORMANCE RENDERING

The IDIA Lab is currently coordinating with Spencer Davis, the Beowulf Cluster Administrator in the department of Computer Science, in conducting research into tasking supercomputing for rendering high-resolution digital image sequences. The implications of this research are broad for the Lab and other areas of BSU that require intensive rendering capabilities necessary for extended reality applications.

IMMERSIVE ART IN PLANETARIUM

BSU IDIA Lab's Dr. Michael Rhoades presented the debut of his "7 Antitheses," an abstract visual music installation in the Charles W. Brown Planetarium on Thursday, March 30th. At this open house event, the unique audiovisual experience consisted of seven compositions ranging in style and tone, in this immersive 3D animated extended reality experience.
https://www.bsu.edu/planetarium

IN MEMORIAM

We all lost a great friend with the recent passing of Muncie native, Bob Beasley. Bob was a gracious and generous person to all who knew him. He collaborated often with both the University and IDIA, representing initiatives from both PAWS and independent projects. A wonderful synopsis of Bob's life is linked below. It was a true pleasure to be his friend!
https://www.thestarpress.com/obituaries/msp052245

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.