

Roman emperor's virtual villa to be unveiled Friday

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The remains of the Piazza D'Oro at Hadrian's Villa. Considered what would have been one of the most luxurious sites at the villa, the imperial banquet complex included many rooms, fountains, private urinals and gardens and had a subterranean road under it. Credit: Virtual World Heritage Laboratory and the Institute for Digital Intermedia Arts

Indiana University's first archaeo-informaticist, Bernie Frischer, will bring to life one of the Roman Empire's best-known and best-preserved imperial villas—Hadrian's Villa—during a public launch of the Digital Hadrian's Villa Project on Friday, Nov. 22, in Washington, D.C.

Frischer, a digital archaeologist and one of the first academics to use

3-D computer modeling to reconstruct cultural heritage sites, spent five years leading the development of a 3-D virtual world modeling the Roman emperor Hadrian's Villa at Tivoli, Italy. The virtual simulation interprets the entire 250 acres and the more than 30 buildings of the second-century site.

Using a live 3-D multi-user online learning environment, visitors can interactively explore the entire villa complex. A related website documents the state of the site today and gives the scholarly background needed to understand the [virtual simulation](#).

Combining information garnered from scholarly studies of how the villa was used with the virtual world gaming platform Unity 3D, Frischer and the Virtual World Heritage Laboratory, which he directs at IU's School of Informatics and Computing, partnered with the Institute for Intermedia Arts at Ball State University to offer visitors the opportunity to take on the roles of historically accurate avatars—from Imperial Court members and Roman senators to soldiers and slaves—during their interactive tours.

"The website makes it possible to study the state of the ruins today, including many sites on private land or in parts of the archaeological park closed to the public," Frischer said. "The simulation shows how the site looked during the reign of Hadrian. It can be freely explored and used to support teaching and research."



This is the Piazza D'Oro's garden courtyard view as it's been digitally restored for the project. Credit: Virtual World Heritage Laboratory and the Institute for Digital Intermedia Arts

Non-playing characters also populate various places in the virtual villa, carrying out daily activities that would have occurred during the final years of Hadrian's reign from 117 to 138 A.D. A visit to the website might include eavesdropping on an imperial audience, participating in a feast, bathing or worshipping.

"A user can select from a variety of avatars representing class, gender and ethnicity, including courtiers, senators, scholars, freemen, soldiers and slaves," Frischer said. "This avatar system was based on scholarly studies of the circulation and flow throughout the villa. The goal was to

make everything evidence-based, from the avatars' costumes to their gestures."

For an example of the avatar experience before the public launch Friday, join Frischer on an eight-minute YouTube tour of the virtual villa, with Frischer playing the avatar's role of Hadrian.

Located near Tivoli, about 20 miles east of Rome with the Sabine Hills as a backdrop, the 200-acre villa—now a World Heritage Site—served as a retreat for Hadrian and his court of an estimated 3,000 workers. It included what is considered the greatest Roman example of the integration of architecture, gardens, sculpture and water features. The villa also contained palaces, temples, libraries, banquet halls, state rooms, quarters for guests and slaves, and innovative buildings such as the so-called Maritime Theater. The latter, which is thought to have been the emperor's private getaway, was a round island surrounded by a moat. Here the emperor had his private bedrooms, bathrooms and study.

Users of the Digital Hadrian's Villa Project can experience each of the villa's particular sites as avatars using the virtual world gaming platform, and the project website also contains a comprehensive and meticulously documented collection of aerial photographs, historical renderings, video interviews with architects and scholars, and real-time 360-degree panoramas of 32 different sites on the villa grounds that were captured on film by Frischer's team.

"First and foremost this project offers a test bed for experiments in Roman cultural geography, but just as important is the opportunity for virtual world projects like this to become the new textbooks for evidence-based learning," Frischer said. "What you are experiencing is an immersive learning environment created through the integration and deployment of commercial products, custom software and the knowledge offered by some of the world's leading experts on Roman

history and culture."

The project was the fruit of an international collaboration of dozens of academic institutions, museums and the Archaeological Superintendency for Lazio, a unit of the Italian Ministry of Culture. A key role was played by the Institute for Digital Intermedia Arts, which created an expansive multi-user 3-D simulation of the villa in Unity, a cross-platform game engine.

The Ball State team, led by Institute for Digital Intermedia Arts Lab Director John Fillwalk, provided visitors a selection of avatars, a companion website and the ability to communicate and collaboratively learn within the [virtual world](#). The lab also implemented Frischer's concept for a "solar tracker," which allows visitors to put the sun in the sky in a historically correct way so that alignments between buildings, statues and the sun can be detected.

"The collaboration with Ball State was crucial to the success of the project," Frischer said. "We are glad that Ball State is continuing to work with us on a new grant sponsored by the Andrew W. Mellon Foundation, which will enhance the work done thus far and permit us to make the Unity simulation available to the general public at no cost over the next 12 to 18 months."

Provided by Indiana University

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