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CCDHCS Poster Proposal

**AZIMUTH 3D:**

**A Tool for Publishing and Annotating Rich Historical 3D Reconstructions on the Web**

Despite continuing innovations in the real time display of 3D models inside web browsers, scholarly 3D historical reconstructions still have yet to make a major impact on the digital humanities landscape. This presentation will demonstrate the completed features from the first edition of Azimuth 3D, a tool developed at the University of Nebraska-Lincoln to allow humanities scholars to easily publish, annotate, and combine 3D reconstructions with other 3D data sets. As a result researchers can create persistent, richly annotated, collaborative 3d environments that can grow over time, all viewable in any web browser.

Azimuth 3D is comprised of a web application that runs as a shell around 3D scenes constructed with Unity, an industry leading free and customizable online game engine. Azimuth is designed to allow the greatest degree of detail and customization while preserving the workflows of both 3D artists and digital humanities scholars. Creators can import completed content in any major 3D format into the Unity editor, and then need only to tag parts of the scene as Azimuth objects before exporting them to the Azimuth web app. In Azimuth, a creator can link a published 3D scene to any standard MySQL database, and then assign scene objects custom metadata, chronological information, annotate them, and link them to primary documents used in the reconstruction. Chronologically tagged objects will appear, evolve, and disappear as users move a timeline slider.

After the initial setup of the scene objects, creators will be able to continue to enrich Azimuth scenes by connecting other digital humanities data in traditional formats. Azimuth will allow for the uploading of spatial data with standard geographic coordinates, including CSV and KML files, plotting the points live in the 3D space. Any associated or linked information to those spatial points will be viewable in the user interface. Import features will also support data in vector graphics formats like SVG, as well as georeferenced maps that users can match to the topography of the terrain. Azimuth will also include a tool for matching the perspective of imported historical photographs with the scene view. Additionally, Azimuth features a tool with which users can annotate either scene space or individual objects. Each of these annotations will also be saved as separate layers, allowing for collaboration between scholars, three dimensional peer review, and community contributions to scenes. Each imported data set will be listed as a separate layer which users may toggle on and off. In addition, all imported layers will also be time sensitive if chronological information is included.

Azimuth will provide scholars with great freedom to bring different kinds of humanities data together in a single 3D environment. This will allow for different sets of humanities data to contextualize one another without forcing researchers to learn to work in unfamiliar formats, or convert large sets of existing data. Because Azimuth is based on Unity, the platform will automatically incorporate updates and advances in the underlying game engine, freeing scene creators to focus on advancements in the display of humanities content, without having to worry about incorporating improvements in graphics technology.

**BIO**

James Coltrain is an assistant professor of History and a faculty fellow in the Center for Digital Research in the Humanities at the University of Nebraska-Lincoln. A historian of the early Americas and the

Atlantic World, his upcoming book is entitled “Constructing Empires: Architecture, Power, and Provincial Experience in the Atlantic World.” He is the lead developer of Azimuth 3D, a scholarly tool for the publication and annotation of 3D historical reconstructions online. Before joining Nebraska, he received his PhD from Northwestern University.