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Unpacking Oakland Cemetery: Immersing Students in Atlanta History

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Abstract. Working with Oakland Cemetery, Georgia State and Emory Universities, and Beam Imagination are creating an experimental, public-facing digital archive that combines maps, a burial database, 3D visualizations, and curation.

Keywords: Digital Heritage, Visual Heritage, Historic Preservation, Lidar, Photogrammetry, Location-Based Learning, Generative Scholarship.

1 Place as Platform for Teaching and Learning

Historic Oakland Cemetery is one of Atlanta's oldest burial spaces and public parks. Working with the Historic Oakland Foundation, Georgia State University, Emory University, and Beam Imagination are creating an experimental, collaborative, and public-facing digital archiving project that combines maps, a burial database, 3D visualizations, and data curation. The project is an example of what Ed Ayers has called *generative scholarship*, as it is "built to generate, *as it is used*, new questions, evidence, conclusions, and audiences" and "offers scholarly interpretation in multiple forms as it is being built"[1]. The project will serve as a platform for connecting community storytelling, experiential learning and research projects at K-12 and higher education institutions, game development, walking tours, and archaeological findings.

Fig. 1. GSU student using a Red Camera to experiment with photogrammetry.

Fig. 2. GSU and Emory faculty and students working with Beam to create drone map.

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2 Connecting Cemetery Map to Burial Database

Our team has created a drone aerial map of the cemetery using the DJI Inspire 2 and x7 camera and Drone Deploy from Beam's team with GPS calibrations from Emory and GSU. We then combined this visualization of the land with the section, block, and lot maps from the cemetery. Using the open source platform, Omeka, we then joined the database of over 40,000 burials to our maps, creating a map of the burials accurate to the lot level. Using students and volunteers, we will move the burial records to the accurate grave locations. This data rich map will provide the platform for online visualizations and experiences at the site.

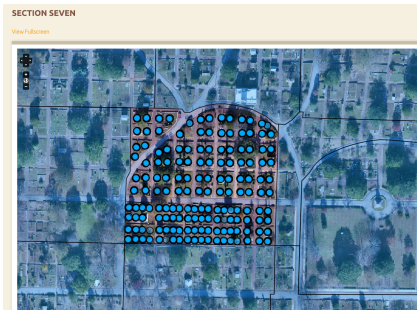

Fig. 3. Burial record on Omeka map

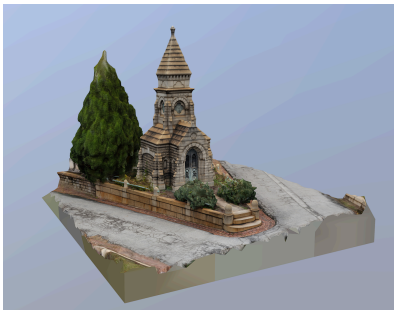

Fig. 4. Mausoleum photogrammetry

3 Data, 3D Visualization, and Location-Based Learning

Our map and data will eventually connect with our 3D visualization of the cemetery. We have two main approaches. Beam is leading efforts to create a full 3D version of the cemetery using Lidar with a Mantis Rover with Ladybug 5 360 camera by FLIR as well as a backpack mount with the Lidar Mill for cloud based processing. At the same time students are capturing individual headstones, statues, and mausoleums using photogrammetry. Along with generative scholarship, underlying our project is the concept of location based learning, which Woodhouse and Knapp argue is "inherently multidisciplinary," "inherently experiential," and "connects place with self and community"[2]. Our purpose is to connect students and the community to important places in our city. While Beam and a few paid fellowship students with experience have created the majority of our models, we are developing and testing instructional documents that will allow any student or community member with a camera to add to our collection of 3D visualizations. Similarly, students from many disciplines and community members will be able to both participate in building projects through research, storytelling, and data curation as well as learn about this significant historical place through the projects that are built on the larger platform.

References

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