

Integrating aerial photography and photogrammetry for interactive map-making

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Overview: The IndianaView scholarship was used as a start-up fund to purchase an unmanned aerial vehicle (UAV), or drone. This drone was used to capture aerial images and produce 3D models using open-sourced photogrammetry software. The models are integrated into an interactive map created with ArcGIS Online. The 3D models created to date were used to establish technical procedures that are being implemented in the longer-term project goals of using the drone to study geological features like rocky outcrops that are difficult to access on foot.

Background: The Walking Man Project is a local art installation in Anderson, IN that captures the innovation and forward thinking of the community. These art sculptures are built by community members and auctioned off to raise funds for local charities and businesses, and then placed all over the city.

Project Objectives: There were four overall objectives for this pilot project:

- Become familiar with operating a drone and practice techniques for capturing aerial images.
- Navigate open-sourced photogrammetry and modeling software (i.e., Blender and Polycam) to process images of Walking Man statues into usable 3D models.
- Georeference each sculpture's location to use in an interactive story map.
- Build an online story map using ArcGIS Online that expresses the purpose of each statue.

Future Projects: The Walking Man story map will be published for community members to use, and it will be updated as more statues are installed. More broadly, the techniques implemented to date are being used to conduct aerial surveys and 3D modeling of other man-made and natural structures.

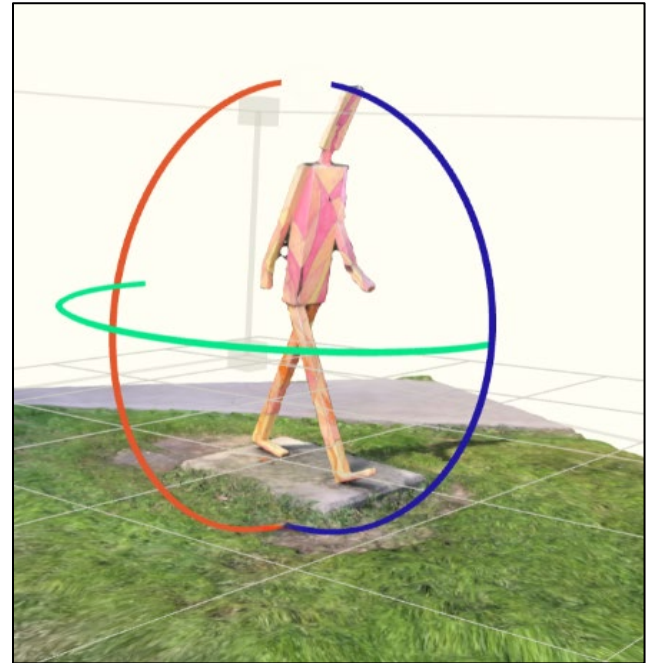


Figure 1. The rendering process in the cloud for one of the five statues.



Figure 2. Digitized 3D models of Walking Man statues mapped in Shady Side Park in Anderson, IN.