

Theme: Burial

I thought it would be interesting to get a fully rounded 3d model of something like a skull which could have been found in the ground.

Macro Paradata: the big decisions relating to the nature of the visualisation.

1. Why has the resource been created and for what audience?

The resource/method has been created with the goal of producing a low polygon model which can then be used in game engines such as Unity and Unreal

2. How will the resource be put to use? Is it sustainable and accessible?

The model and textures generated are essentially an open format that can be used in all game engines and thus most platforms e.g. Ipad, Console, PC, Oculus Rift

3. Why have you chosen to use the approach/methods applied? (e.g., why is it static or interactive; high or low in detail; photorealistic or schematic; digital or analogue; impressionistic or grounded only in available data; etc.)

Being a videogames artist, I have been interested in exploring the use of scan data (lidar and/or photogrammetry) to be used as models in games. The plus points of using scan data are accuracy, speed and capturing a highly dense model which can be sourced from over the years as consoles etc. become more powerful.

The main issue however is that the point cloud data generated is too high a fidelity to run successfully in a real-time engine. I have been investigating a process/workflow to reduce the point cloud data to a manageable low polygon mesh which keeps the look of the original scan.

Micro Paradata: the small-scale decision-making processes underlying the construction of the visualisation.

1. What are the basic steps you followed in putting together the resource?

I took photographs of skulls at the Liverpool World Museum, generated point clouds and high resolution mesh in Photoscan. This was then brought into Z-Brush to clean up rough edges and then I both decimated and re-meshed the mesh in Z Brush. Once Uv's were generated on the new low poly mesh (Z-Brush), I re-baked the diffuse, normal and ao in X-Normal

2. What supporting evidence did you rely upon?

I did some research into photogrammetry practice and Photoscan. The rest of the workflow was using techniques I've used in the videogames industry.

3. How have you acknowledged uncertainty in the resource? Where might alternative interpretations have been made or where are such interpretations otherwise available for viewing audiences to refer to?

Although the combination of the low polygon mesh and textures/shaders produced a good recreation of the high poly version, you do lose some fidelity. Also the conditions of taking photographs in the museum meant that lighting was controlled correctly. Ideally a colour checker would be used and the skulls photographed in a more controlled environment.

Photoscan proved to be a quick way of generating mesh and textures, however when investigating lidar data, there doesn't seem to be a similar piece of software, so would be interested in seeing a new piece of software that combined the 2 processes.

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