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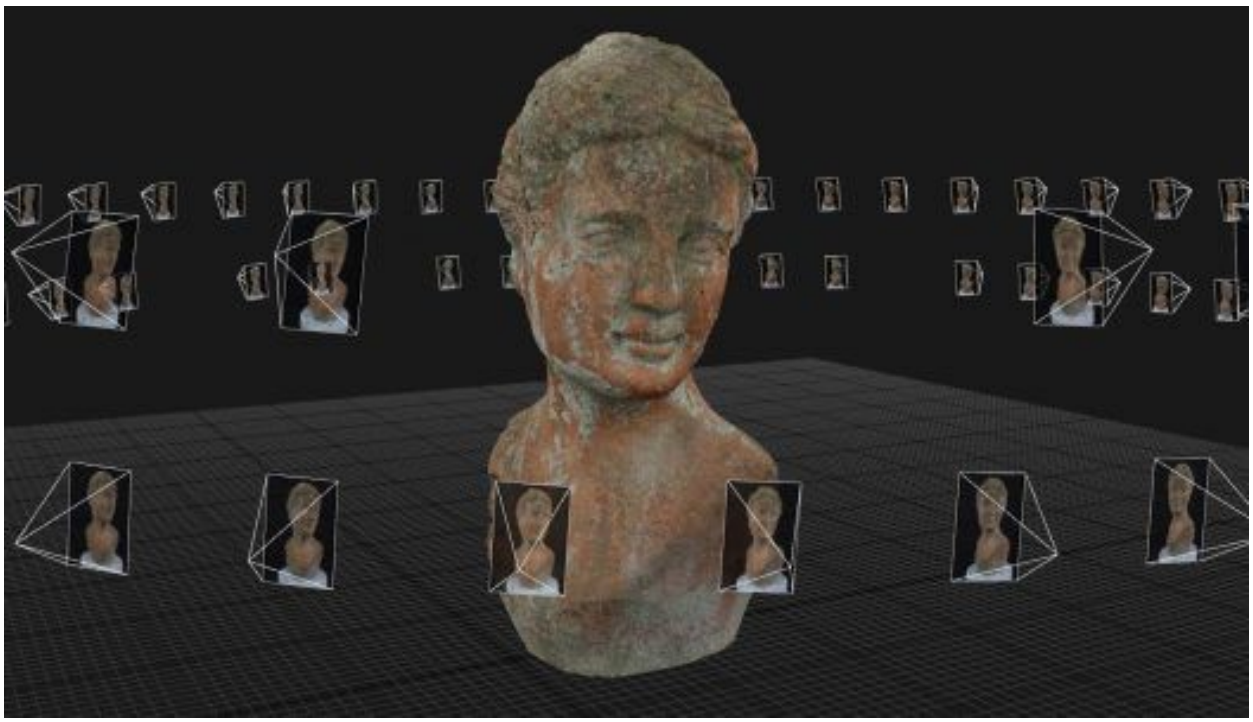
Research and Development Partnership

Photogrammetry Pipeline Implementation

Research on Processes, Software, and Hardware



Introduction

Photogrammetry is the science of making measurements from photographs.

The input to photogrammetry is photographs, and the output is typically a map, a drawing, a measurement, or a 3D model of some real-world object or scene. Many of the maps we use today are created with photogrammetry and photographs taken from aircraft.

The purpose of this project is to test different software to find the best solution for the Radlab's 3D asset creation. We will figure out best practices to document, experiment with different outputs, and test a new API for Canon. The outputs will focus on 3D Mesh and textures for Gaming, Web, VR/AR/MR/XR, and 3D Printing.

Our test subjects will be two statues located on campus. We will shoot one with a Canon Powershot XS70 hs camera and the other with a Canon Rebel SL3. Each shoot will be with

an intern controlling the camera via laptop using Canon's Camera Control API (CCAPI) while another intern holds the cameras.

Required Resources

The Studio will need a Turntable, Light Kit, Camera (Canon EOS 5Dsr), Tripod, and Computer (with API and Photogrammetry software),. The Mobile Unit will need Cameras, Laptop (API and Software), and any supported mobile devices. I will also use one of my office PC's for rendering photos since it is time consuming. This project will have best results if 2-3 Radlab staff assist along with 2-4 interns.

Outcomes:

- Documented 3D Pipeline for Gaming assets, VR/AR/MR/XR assets, and 3D printing.
- Feedback to Canon on how helpful the API was with the Photogrammetry project and suggestions on how to improve it.
- Student and/or staff testimonials on the new API for Canon's marketing department.
- 3D models hosted on website for easy viewing.