NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Computer Science and Engineering
College of Engineering

Mobile Phone Based 3D Digitization System

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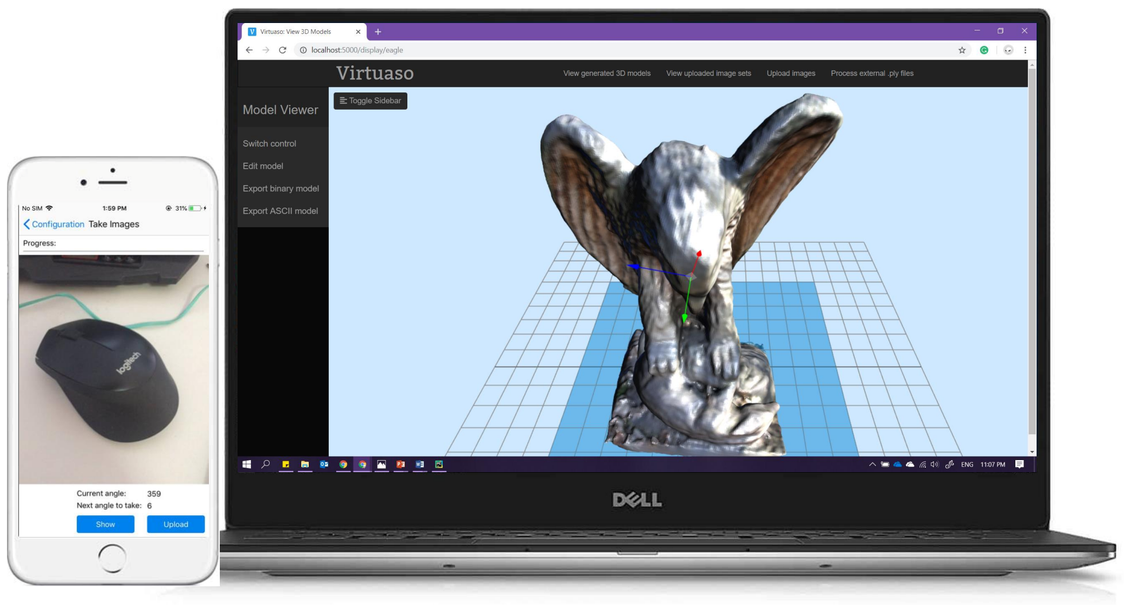
End-to-end 3D reconstruction via photogrammetry

An integrated iOS application guides users in taking a set of images of different dimensions, and uploads them automatically to the system's web application. The web application then conducts full 3D reconstruction of a scene / object via photogrammetry processing.

Technology used:

- Scale-Invariant Feature Transform
- OSM-bundler
- Patch Multi-Stereo View
- Poisson Reconstruction
- Trimesh



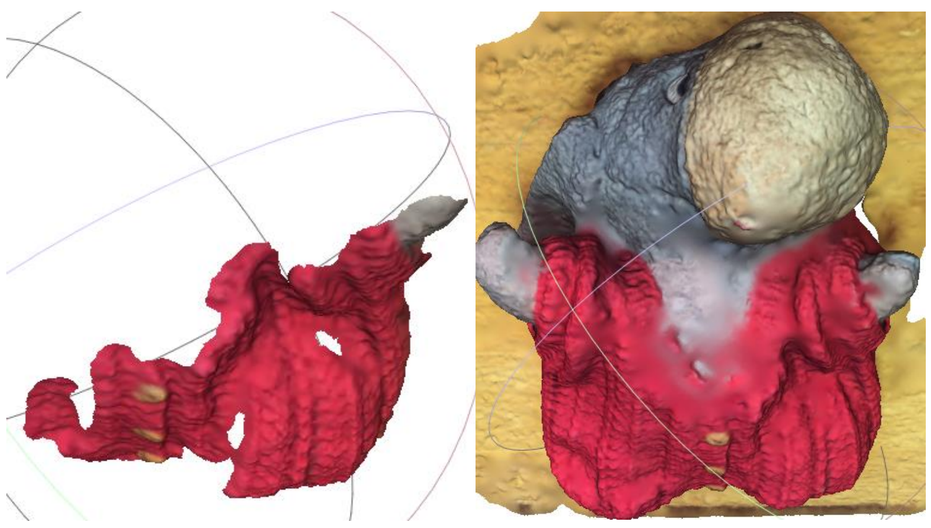
Definable quality

Low quality High quality

Improved denoising

Before denosising After denosising

Improved optimization



Before optimization After optimization

Users can generate models of different quality. The feature-matching has been optimized by comparing a top-view image with the other images. Noise reduction is also done by identifying all disjointed meshes in the object, and then removing all but the largest mesh.