VERSION 2

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Spectral photogrammetry protocol V.2

PLOS One

Aurore Mathys¹

¹[Royal Museum for Central Africa], [Royal Belgian Institute of Natural Sciences]

Aurore Mathys

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Acquisition

- 1 Place de specimen at the center of the turntable with scales, photogrammetry marker and MSI calibration card (CHSOS).
- 2 Setup lamp and camera distance. Place the camera at approximately 30°.
- 3 Setup the correct exposure for each wavelenght and verify that the exposure is correct in spectrashoot using the MSI calibration card. Adjust exposure until the specimen is correctly lit.
- 4 Start capturing: for one specimen position capture at all the 15 wavelengths + white light. Then add the UV-pass filter and capture pictures in the UV wavelengths (UVR). Next place the UV-cut off filter and capture picture for each UV wavelengths (UVF). Pictures should be capturred in raw format.
- 5 Rotate the turntable of 10° and repeat step 4. Do this for the complete rotation.
- 6 Move the camera at an angle of 60° at the approximately the same distance than previously and repeat the operation for the complete rotation.
- 7 If necessary turn the specimen and repeat the process for as many rotation/views as necessary.

Pre-processing

- 8 Separate the wavelengths in different folders.

Processing

- 9 Open Agisoft Photoscan and create a chunk for each wavelengths (rename the chunks accordingly). Import the pictures.
- 10 Go to workflow > batch process and add the following step: align pictures (highest), build dense cloud (high), build mesh (high).
- 11 Repeat the processing 3 times to make sure the results are reliable.
- 12 If the results are reliable, export the models as .stl for surface analysis.