STSM Graphical Abstract

REFERENCE: Short Term Scientific Mission, COST TD1201

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Many analysis and digitisation techniques have been applied to the 4 Roman coins from the COSCH Roman coins case study (http://tinyurl.com/zza2zob). Among those techniques Reflectance Transformation Imaging (RTI) was applied using 4 different domes. RTI is a photographic technique which enables to virtually relight flat objects enhancing surface details of the object. The results of those different domes were visually compared and showed that:

- the algorithms used by Dr. MacDonald gave the more realistic impression of the coins and the best specular rendering, although none of the 4 domes and algorithms used can render a realistic appearance of the reflections of the silver coins.
- the comparison of the software showed that the HP PTM is the best specular rendering, but is the less user friendly.
- the number of lights in the dome has only a slide impact in the fluidity of the light navigation on the resulting file. The Minidome with 260 light is the more fluid. However it doesn't render more geometries than the other domes with less light, but it displays the best texture surface.

We are aware that the visual approach is subjective and depending on the knowledge and understanding of the evaluator, but a statistical comparison using normal value was too time consuming for the 2 weeks of the STSM.

All the results showed that with small objects depth of field and stability of the camera are crucial. Using focus stacking combined to RTI might be an interesting alternative in order to augment the amount of details captured.

All the RTI/PTM results seemed to display a large amount of detail, larger than you would obtain with most surface 3D scanner or simple photography. This could be investigated in future researches.


UCL dome. Pict. A. Mathys 2016


Cyprus Institute.
Pict. V. Moitinho 2016


RBINS dome.
Pict. A. Mathys 2016


Southampton dome. Pict. A. Mathys 2016


Pict. from UCL RTI results


Pict. from Cyprus Institute RTI results


Pict. from RBINS RTI results


Pict. from Southampton RTI results