

# Unveiling the invisible

A mathematical touch to challenges in Cultural Heritage

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Do Not Touch? 3D in Museums - Cambridge

# The MACH group: who we are

We are a brand new Cambridge-based research group with interdisciplinary skills from:

- the Cambridge Image Analysis (Prof C.-B. Schönlieb, Dr K. Targonska-Hadzibabic, Mr S. Parisotto);
- the Fitzwilliam Museum (Dr S. Panayotova, Dr J. Vine);
- the Faculty of Classics (Dr A. Launaro, Ms N. Leone);
- the Hamilton Kerr Institute (Dr S. Bucklow).

## Aim for 2019-2021

Use mathematical image analysis methods mainly developed for medicine-related challenges to process digital collections in the arts and humanities.

# Overview of the challenges

## Illuminated Manuscripts



## Coarseware Roman pottery



- defect identification;
- virtual inpainting;
- multi-modal data fusion.

## Cross-section of paintings



- partial shape features;
- clustering;
- re-think old catalogues.

- complex-shape detection;
- texture analysis;
- layer classification.

# To touch or not to touch?

Virtual restorations as new tactile experience!



Photo by Erik Schepers.



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