



[Volume XXXIX-B5](#)

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXIX-B5, 109-114, 2012  
www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXIX-B5/109/2012/  
doi: 10.5194/isprsarchives-XXXIX-B5-109-2012  
© Author(s) 2012. This work is distributed  
under the Creative Commons Attribution 3.0 License.

## CONSERVATION MONITORING OF A HERITAGE CEILING BY PHOTOMETRIC STEREO

L. MacDonald<sup>1</sup>, I. Gibb<sup>2</sup>, and S. Robson<sup>1</sup>

<sup>1</sup>Photogrammetry, 3D Imaging and Metrology Research Centre, University College London WC1E 6BT, UK

<sup>2</sup>Conservation Collection Care, Hampton Court Palace, Historic Royal Palaces, Surrey KT8 9AU, UK

Keywords: Architecture, conservation, monitoring, camera, imaging, reconstruction

Abstract. Photographic survey techniques were employed to monitor the condition of the paintwork on the ceiling of the Queen's Staircase at Hampton Court Palace. Illumination was provided by a flash, mounted on an 8 metre telescopic mast, raised to approximately 60 cm below the ceiling, with images were taken from a fixed camera position on the floor of the landing at a range of 6.5 m. The photometric stereo method was applied to images from ten lamp positions, to calculate surface normals and a depth map. Cross-sections at the estimated surface resolution of 7.7 pixels/mm, achieved a depth (Z axis) resolution of approximately 100 microns.

[Conference Paper](#) (PDF, 1178 KB)

Citation: MacDonald, L., Gibb, I., and Robson, S.: CONSERVATION MONITORING OF A HERITAGE CEILING BY PHOTOMETRIC STEREO, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXIX-B5, 109-114, doi: 10.5194/isprsarchives-XXXIX-B5-109-2012, 2012.

[Bibtex](#) [EndNote](#) [Reference Manager](#) [XML](#)