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CLOSE-RANGE PHOTOGRAMMETRY ENABLES DOCUMENTATION OF ENVIRONMENT-INDUCED DEFORMATION OF ARCHITECTURAL HERITAGE

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Abstract

Deformation, damage and permanent loss of heritage assets due to various physical and environmental factors has always been a major problem. As the availability of funds for conservation and restoration is limited, the digital documentation of heritage objects and monitoring of environment-induced deformations are increasingly important for cultural heritage preservation. Our study elucidates developments in the digital image capturing and processing for recording architectural heritage objects focusing on the digital camera calibration, close-range imaging, and photogrammetric modelling of complex structures using image matching techniques. A particular consideration in this paper is given to the ortho-photographic image compiling and accuracy assessment procedure. The practicality of the methodology is demonstrated by applying photogrammetric system *PhotoMod* for documentation of decorative elements in Uzutrakis manor, a national heritage site in Trakai, Lithuania.

Key words: close-range photogrammetry, heritage, surface and geometric deformations, ortho-photographic model, Uzutrakis manor

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