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Protection of Cultural Heritage against the Effects of Climate Change Using Autonomous Aerial Systems Combined with Automated Decision Support

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Abstract : The article presents an ongoing work in research projects such as SCAN4RECO or ARCH, both funded by the European Commission under Horizon 2020 program. The former one concerns multimodal and multispectral scanning of Cultural Heritage assets for their digitization and conservation via spatiotemporal reconstruction and 3D printing, while the latter one aims to better preserve areas of cultural heritage from hazards and risks. It co-creates tools that would help pilot cities to save cultural heritage from the effects of climate change. It develops a disaster risk management framework for assessing and improving the resilience of historic areas to climate change and natural hazards. Tools and methodologies are designed for local authorities and practitioners, urban population, as well as national and international expert communities, aiding authorities in knowledge-aware decision making. In this article we focus on 3D modelling of object geometry using primarily photogrammetric methods to achieve very high model accuracy using consumer types of devices, attractive both to professions and hobbyists alike.

Keywords : 3D modelling, UAS, cultural heritage, preservation
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