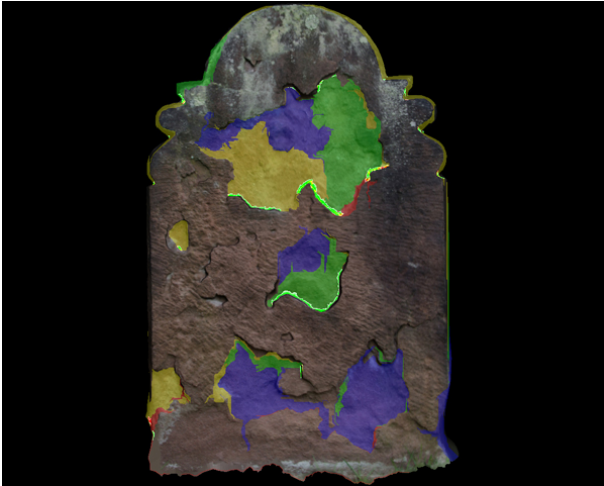


Towards Semi-Automatic Scaling Detection on Flat Stones

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In Cultural Heritage projects, it is very important to identify and track weathering effects on monuments in order to design and test conservation strategies. Currently, this mapping is manual work performed by experts based on what they observe and their experience. In this paper, we present a workflow to map the weathering effect known as scaling on monuments with very little user interaction. First, we generate a 3D model of the monuments using photogrammetry techniques. Then, we reduce the noise in the acquired data using an adaptive and anisotropic filter. After that, we estimate the original shape of the surface before the

weathering effects using the RANSAC algorithm. With this information, we perform a geometrical analysis to detect the features affected by this weathering effect and compute their characteristics. Then, we map the regions that have suffered scaling using the detected features and a segmentation based on the distance between the mesh and the unweathered surface. Our technique results can be very useful to understand the level of weathering of a monument and to trace the weathered parts through time automatically.