IMAGE-BASED BAS-RELIEF GENERATION WITH GRADIENT OPERATION

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|Abstract: |
|Bas-relief is a type of sculpture artwork which is carved into a plane or a surface, |
|traditionally created by hand. Recently, computers have been adopted to assist the design |
|and production of relief works. In this paper, we propose a novel method to generate the 3D|
|mesh of a relief based on a 2D image input. Gradient operations, such as magnitude |
|attenuation and unsharp masking, are introduced to convert an image into a relief. The |
|Poisson equation is solved for the construction of the depth information of a relief from |
|the tuned data. The final output as geometric mesh enables artists or designers to add |
|additional texture and material features for their relief design. More importantly, such a |
|mesh can be directly used for computer aided manufacturing as input. |