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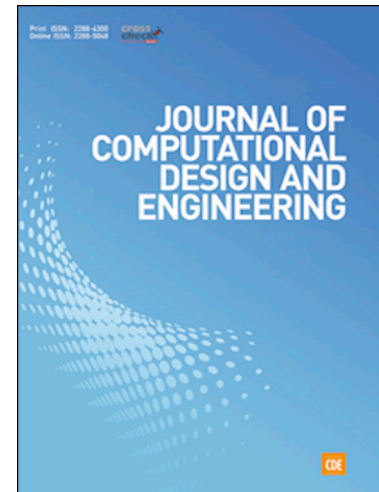
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Minimum Variation Log-aesthetic Surfaces and Their Applications for Smoothing Free-form Shapes

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Abstract

The log-aesthetic curve, which includes the logarithmic (equiangular) spiral, clothoid, and involute of a circle, achieves a control over curvature distribution by defining its shape as an integral form of its curvature and they are expected to be utilized for the field of design. However, it is very difficult to extend it to surfaces and the existing formulations have some problems that they cannot use arbitrary boundary curves. In this paper, we propose “minimum variation log-aesthetic surface” as a new formulation for the log-aesthetic surface. Based on variational principle our method can generate surfaces by minimizing the objective function newly proposed in this paper for given arbitrary boundary curves.

Keywords: Aesthetic Design, Log-aesthetic Curve, Log-aesthetic Surface, Variational Principle

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