Author (UniMAP)	Chang, L.H.T.
School / Department	Institute of Engineering Mathematics
Citations	Saaban, A., Piah, A.R.M., Majid, A.A., Chang, L.H.T. G1 scattered data interpolation with minimized sum of squares of principal curvatures (2005) Proceedings of the Conference on Computer Graphics, Imaging and Vision: New Trends 2005, 2005, art. no. 1521092, pp. 385-390. DOCUMENT TYPE: Conference Paper SOURCE: Scopus
Abstract	One of the main focus of scattered data interpolation is fitting a smooth surface to a set of non-uniformly distributed data points which extends to all positions in a prescribed domain. In this paper, given a set of scattered data $V = \{(x_i, y_i), i=1,...,n\} \in R^2$ over a polygonal domain and a corresponding set of real numbers $\{Z_i\}_{i=1}^{n}$ we wish to construct a surface S which has continuous varying tangent plane everywhere (G^1) such that $S(x_i y_i) = z_i$. Specifically, the polynomial being considered belong to G^1 quartic Bézier functions over a triangulated domain. In order to construct the surface, we need to construct the triangular mesh spanning over the unorganized set of points, V which will then have to be covered with Bézier patches with coefficients satisfying the G^1 continuity between patches and the minimized sum of squares of principal curvatures. Examples are also presented to show the effectiveness of our proposed method.
Impact Factor	None
Document Type	Conference Paper
Serials Number (Internal)	200505