

ABSTRACT

THREE DIMENSIONAL DATA PROCESSING METHODS AND SYSTEMS

Methods and systems for processing three dimensional mesh data are described. A method of processing three dimensional mesh data, the method comprises: receiving input three dimensional mesh data comprising a plurality of vertexes and edges joining the vertexes; calculating a set of initial curvature values, the set of initial curvature values comprising a curvature value for each vertex of mesh data corresponding to the input three dimensional mesh data; forming an initial curvature field from the set of initial curvature values; smoothing the initial curvature field to obtain a set of smoothed curvature values; calculating an average edge length for the input three dimensional mesh data; determining a multiple value for each vertex of the input three dimensional mesh data; iteratively reconnecting vertexes of the input three dimensional mesh data to generated reconnected three dimensional mesh data by: splitting edges with a length greater than a first threshold depending on the multiple value corresponding to a vertex associated with the respective edge and the average edge length; collapsing edges with a length less than a second threshold into a middle point, the second threshold depending on the multiple value corresponding to a vertex associated with the respective edge and the average edge length; flipping edges to implement valance optimization; and tangent smoothing edges; and outputting the reconnected three dimensional mesh data.

[FIG.1 to be printed with Abstract]