Improved Method for More Efficient Mapping of Images

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Technology description

Texture mapping is a method used to add detail, texture or color to a computer-generated graphic or 3-D model. This process has been limited thus far to the transfer of a 2-D image onto a 3-D computer generated surface. Basic techniques have been proposed for obtaining a flattened computerized image to aid in the visualization of complex structures; however, the resulting flattened representations are often distorted. An improved method for mapping any image that can be stored in a computer-readable format onto a flattened surface is needed. UW–Madison researchers have developed a computerized apparatus and an associated method and program for producing a flattening map from a digitized image. The digitized image may be a real object, quasi-discrete data or computer-generated discrete data. A first set of data comprising a plurality of discrete surface-elements is constructed to represent at least a portion of the surface of a digitized image; then, a flattening function is performed on the data set to produce the flattening map. The flattening map is conformally mapped onto a computer-generated surface that then can be displayed on a computer-assisted display apparatus that is in communication with a processor.
The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a computerized apparatus for producing an improved flattening map of a digitized image.

Application area

Computer vision and image processing
Medical diagnostic: image-guided surgery or non-invasive diagnostic imaging
Product and process design research and development, such as integrated circuit and printed circuit board fabrication or vehicle components and assemblies
3-D texture mapping for use in the computer animation of cartoons, virtual reality or image restoration
2-D or 3-D conformally mapped graphic images for the shading of geographic, atmospheric, galactic and weather maps

Advantages

Can produce single mapped images (electronic form or hardcopy) as well as a series of dynamically-mapped sequential images (e.g., beating human heart)

Flexible design—can produce surface flattening information about an original image or conformally mapped surfaces onto a computer generated shape such as a sphere, blob, cylinder or square
Much faster and more efficient mapping of original images
Simplified process
Extremely versatile applications
Reliable and robust

Institution

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