

Curve And Surface Reconstruction

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Develops the fundamentals for processing point data into a digital mode and presents algorithms for surface reconstruction. Many applications in science and engineering require a digital model of a real physical object. Advanced scanning technology has made it possible to scan such objects and generate point samples on their boundaries. This book, first published in 2007, shows how to compute a digital model from this point sample. After developing the basics of sampling theory and its connections to various geometric and topological properties, the author describes a suite of algorithms that have been designed for the reconstruction problem, including algorithms for surface reconstruction from dense samples, from samples that are not adequately dense and from noisy samples. Voronoi- and Delaunay-based techniques, implicit surface-based methods and Morse theory-based methods are covered. Scientists and engineers working in drug design, medical imaging, CAD, GIS, and many other areas will benefit from this first book on the subject. EAN/ISBN : 9780511258237 Publisher(s): Cambridge University Press Format: ePub/PDF Author(s): Dey, Tamal K.

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