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Abstract:

Irregular to Completely Regular Meshing in Computer Graphics

This talk will provide a quick overview of meshing structures used in computer graphics. Maximizing rendering performance is a key goal, and irregular meshes provide the greatest geometric fidelity for a given mesh complexity. Level-of-detail representations like progressive meshes allow selective refinement of such meshes even in real-time applications. Semi-regular meshes, defined using a mesh subdivision process, offer simpler data structures, and can converge to smooth limit surfaces. Finally, geometry images describe an arbitrary surface using completely regular remeshing, thus storing only a 2D array of points. The simplicity of such geometry images is ideally suited for implementation in graphics hardware.