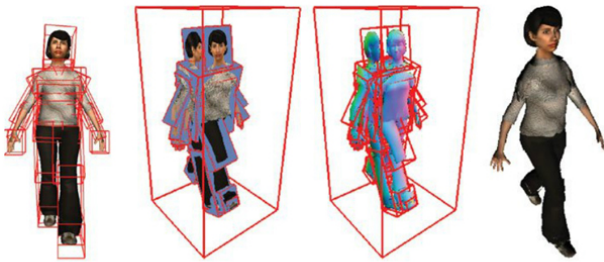


A flexible approach for output-sensitive rendering of animated characters

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Rendering detailed animated characters is a major limiting factor in crowd simulation. In this paper we present a new representation for 3D animated characters which supports output-sensitive rendering. Our approach is flexible in the sense that it does not require us to pre-define the animation sequences beforehand, nor to pre-compute a dense set of pre-rendered views for each animation frame. Each character is encoded through a small collection of textured boxes storing colour and depth values. At runtime, each box is animated according to the rigid transformation of its associated bone and a fragment

shader is used to recover the original geometry using a dual-depth version of relief mapping. Unlike competing output-sensitive approaches, our compact representation is able to recover high-frequency surface details and reproduces view-motion parallax effectively. Our approach drastically reduces both the number of primitives being drawn and the number of bones influencing each primitive, at the expense of a very slight per-fragment overhead. We show that, beyond a certain distance threshold, our compact representation is much faster to render than traditional level-of-detail triangle meshes. Our user study demonstrates that replacing polygonal geometry by our impostors produces negligible visual artefacts.