Crowd Rendering with Per joint Impostors

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We present two methods for rendering thousands of animated characters in real-time. We maximize rendering performance by using a collection of precomputed impostors sampled from a discrete set of view directions. The first method is based on relief impostors and the second one on flat impostors. Our work differs from previous approaches on view-dependent impostors in that we use per-joint rather than per character impostors. Characters are animated by applying the joint rotations directly to the impostors, instead of choosing a single impostor for the whole character from a set of predefined poses. This representation supports any arbitrary pose and thus the agent behavior is not constrained to a small collection of predefined clips. To the best of our knowledge, this is the first time a crowd rendering algorithm encompassing image-based performance, small GPU footprint and animation-independence is proposed.

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