

# Automatic Speed Graph Generation for Predefined Camera Paths

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Predefined camera paths are a valuable tool for the exploration of complex virtual environments. The speed at which the virtual camera travels along different path segments is key for allowing users to perceive and understand the scene while maintaining their attention. Current tools for speed adjustment of camera motion along predefined paths, such as keyframing, interpolation types and speed curve editors provide the animators with a great deal of flexibility but offer little support for the animator to decide which speed is better for each point along the path. In this paper we address the problem of computing a suitable speed

curve for a predefined camera path through an arbitrary scene. We strive at adapting speed along the path to provide non-fatiguing, informative, interestingness and concise animations. Key elements of our approach include a new metric based on optical flow for quantifying the amount of change between two consecutive frames, the use of perceptual metrics to disregard optical flow in areas with low image saliency, and the incorporation of habituation metrics to keep the user attention. We also present the results of a preliminary user-study comparing user response with alternative approaches for computing speed curves.