

M Christie, F Lamarche and F. Benhamou (2009). A Spatio-temporal Reasoning System for Virtual Camera. Lecture Notes in Computer Science (Proc. of Smart Graphics 2009) 5531/2009.

Abstract: The problem of virtual camera planning consists in computing camera paths in virtual environments that satisfy given cinematographic properties. In this article, we present a spatio-temporal query system for reasoning over the cinematographic expressiveness of a dynamic 3D scene. We offer a declarative language with quantifiers based on a first order logic representation. Prior to any query, we fully characterize each spatial and temporal region of the search-space according to a broad set of properties. We rely on interval-based constraint techniques to guarantee the completeness of the characterization. Then in order to answer a query, we build a digraph that connects over space and time the areas satisfying the request. The exploration of this digraph together with its connectivity properties provide the user with the identification of distinct classes of solutions as well as the full set of camera paths with their temporal validity. Applications are found in film prototyping, *e.g.* when a director needs to explore the staging, shot and editing possibilities in real world, by using virtual environments, or in automated and semi-automated editing.

