Volume XXXVIII-5/W16

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXVIII-5/W16, 453-459, 2011
www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXVIII-5-W16/453/2011/
doi:10.5194/isprsarchives-XXXVIII-5-W16-453-2011

INTERACTIVE 3D LANDSCAPES ON LINE

B. Fanini[2], L. Calori[1], D. Ferdani[2], and S. Pescarin[2]
[1]CINECA, via Magnanelli 5/2, Casalecchio di Reno (BO), Italy
[2]CNR ITABC, via Salaria km 29,300, 00015 Monterotondo St. (Rome), Italy

Keywords: Web Applications, Web Graphics, OpenSceneGraph, Virtual Museums, Real-Time Graphics, Landscape reconstruction

Abstract. The paper describes challenges identified while developing browser embedded 3D landscape rendering applications, our current approach and work-flow and how recent development in browser technologies could affect. All the data, even if processed by optimization and decimation tools, result in very huge databases that require paging, streaming and Level-of-Detail techniques to be implemented to allow remote web based real time fruition. Our approach has been to select an open source scene-graph based visual simulation library with sufficient performance and flexibility and adapt it to the web by providing a browser plug-in. Within the current Montegrotto VR Project, content produced with new pipelines has been integrated. The whole Montegrotto Town has been generated procedurally by CityEngine. We used this procedural approach, based on algorithms and procedures because it is particularly functional to create extensive and credible urban reconstructions. To create the archaeological sites we used optimized mesh acquired with laser scanning and photogrammetry techniques whereas to realize the 3D reconstructions of the main historical buildings we adopted computer-graphic software like blender and 3ds Max. At the final stage, semi-automatic tools have been developed and used up to prepare and clusterise 3D models and scene graph routes for web publishing. Vegetation generators have also been used with the goal of populating the virtual scene to enhance the user perceived realism during the navigation experience. After the description of 3D modelling and optimization techniques, the paper will focus and discuss its results and expectations.

Conference Paper (PDF, 2545 KB)

Citation: Fanini, B., Calori, L., Ferdani, D., and Pescarin, S.: INTERACTIVE 3D LANDSCAPES ON LINE, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXVIII-5/W16, 453-459, doi:10.5194/isprsarchives-XXXVIII-5-W16-453-2011, 2011.

Bibtex EndNote Reference Manager XML