

OKTAL SYNTHETIC ENVIRONMENT

Infrared Real-Time physical infrared rendering with OpenSceneGraph

OKTAL-SE recently selected the OpenSceneGraph library for the development of its real-time visible and infrared rendering software. From now on, the SE-SCENARIO, SE-FAST and SE-FAST-IR software from OKTAL-SE are based on the OpenSceneGraph development kit.

OKTAL-SE is a French company working for more that 10 years in the development of multi-sensor physical simulation software dedicated to visible, infrared and electromagnetic sensor signal generation. The SE-Workbench software suite is used in France and in many other countries (Germany, Sweden, Korea, United-Kingdom, Singapore, Finland) for multi-sensor physical simulation studies, involving ray-tracing techniques for validation purposes and graphic board technology for real-time rendering.

Why OpenSceneGraph ?

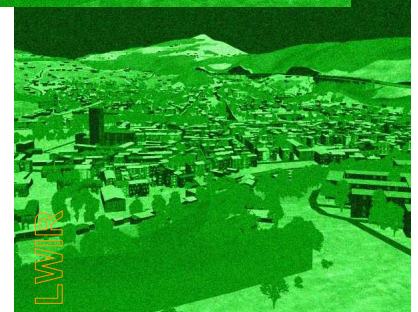
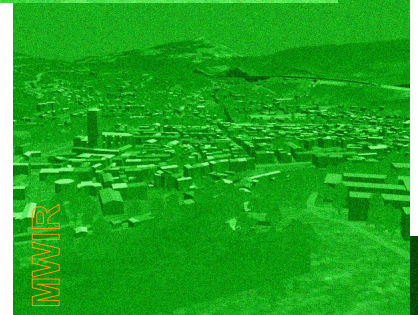
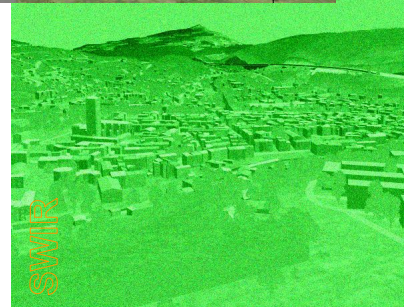
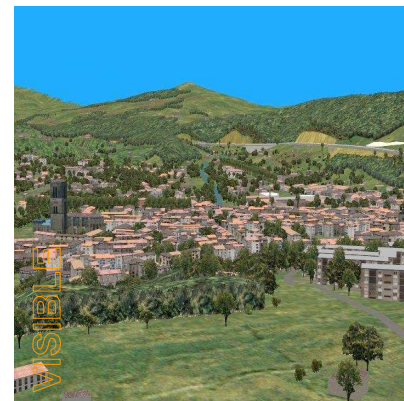
On the technical point of view, the choice of OpenSceneGraph is motivated by the support of very advanced shader technology, the multi-threading functions, the ad equation with the last graphic boards capabilities and the reuse of most of the older scene graphs functions that constitute a big advantage. Furthermore, on the commercial point of view, the selection of OpenSceneGraph is motivated by the flexibility and the deployment model of the API.

OKTAL-SE and OpenSceneGraph

OKTAL-SE takes advantage of the last development of the shader technology, combined with the properties of OpenSceneGraph to improve the real-time rendering functions of its infrared simulation software. In that context, the shaders are used to improve the infrared rendering and the flexibility of the resulting applications. For example, it is possible to change of the thermal or the weather conditions in real-time. It is also easy to change the wavelength in real-time: switching between the visible band, short (SWIR) and medium (MWIR) or long infrared (LWIR).

Future developments...

The specific support of shaders in OpenSceneGraph enables OKTAL-SE to implement complex infrared rendering functions. For example, the rendering of very large 3D terrain databases in infrared that may include special effects and sensor rendering functions will be possible. Finally, this experience with OpenSceneGraph enables OKTAL-SE to integrate its real-time rendering software with most of the scene graphs, including proprietary ones.



Visible and Infrared image rendering using OpenSceneGraph:
SE-FAST and SE-FAST-IR software from the SE-Workbench-IR

For more details about the last development of the SE-Workbench multi-sensor simulation software, please refer to the OKTAL-SE web-site: www.oktal-se.com