

# SE-FAST-IR

# Advanced Edition

Infrared

RENDERING

NVG

Realtime



See as a Sensor does

Sensor

## EO FAST SCENE GENERATION TOOL

Set of physics-based software and libraries allowing to prepare and to visualise 3D database in real-time for the EO domain. This edition enables a context different from the SE-Workbench context.

**SE-FAST-IR Advanced edition**

The Advanced version enables simulation of man in the loop with real time constraint.

It is composed of:

- SE-FAST-IR-COMPILER: prepares 3D database for real-time rendering.
- SE-FAST-IR library: computes and displays infrared images at real-time frame rates.
- SE-FAST library: performs 3D graphical applications compatible with SE-Workbench tools.

SE-FAST-IR Advanced edition includes the SE-FAST-IR Standard edition (see the associated flyer).

This edition applies both for training applications, for hardware in the loop applications and simulation with an EO channel

**SE-FAST-IR API**

SE-FAST-IR library, called **SE-FAST-IR-RENDERER**, is tied to SE-FAST, as a rendering engine.

SE-FAST-IR library generates quantitative accurate images of complete scenes, including natural backgrounds, cultural features, and mobile objects.

SE-FAST-IR library supports:

- Dynamic changes to the scene
- Dynamic selection of thermal and atmospheric conditions
- Dynamic selection of sensor

SE-FAST-IR library includes **basic** functionalities to simulate sensor display effects:

- Sensor noise
- NVG halo
- Dynamic gain control
- Reverse video
- Image colouring

For those who need to simulate advanced sensor effects, the additional SE-IR-SENSOR module is available.

**SE-FAST API**

SE-FAST is based on the OpenSceneGraph 2.0.

**Principle**

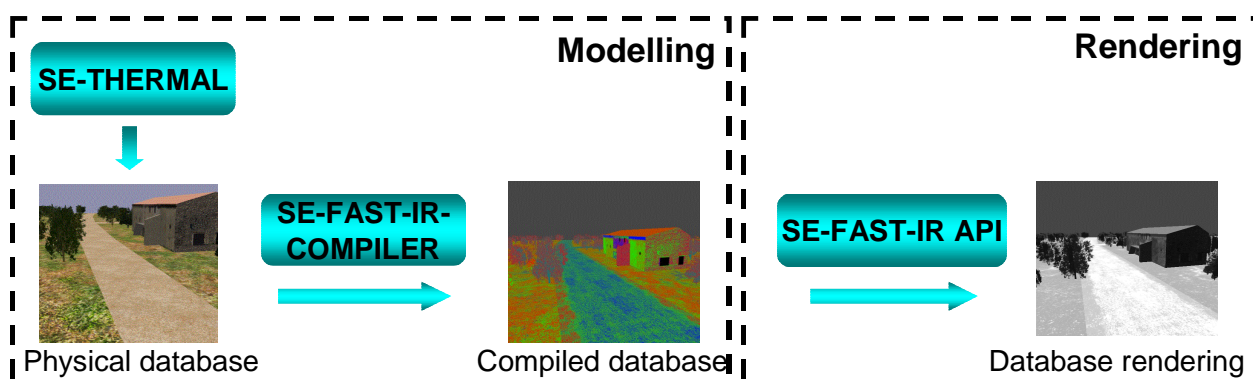
A scene and a camera are associated to a visualisation window handled by SE-FAST. The scene is composed of 3D objects and an environment. The camera corresponds to the observer point of view. The position and orientation of the camera as well as the objects can be controlled dynamically.

**Features**

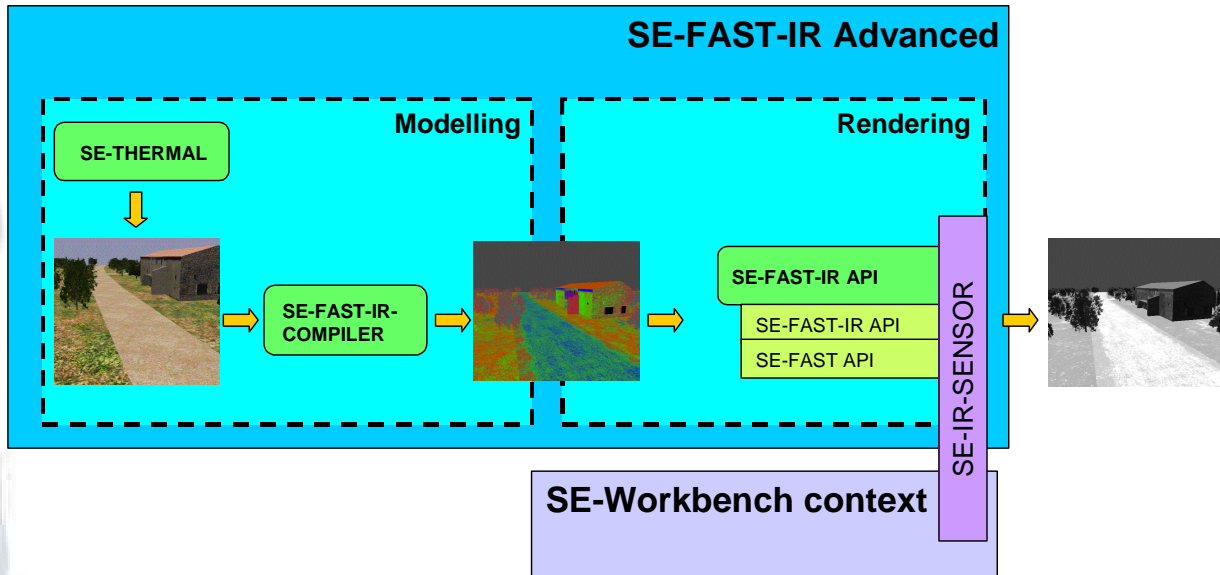
- view management
- point of view management
- scene and object management
- intersection management
- environment management

**Additional modules:**

SE-IR-SENSOR:  
Library for advanced infrared sensor effects simulation



Functional architecture of the advanced edition



Product architecture of the advanced edition

**Benefits:**

Low cost solution with SE-FAST library use  
 Potentially compliant with any OpenGL visualisation loop

**System recommended :**

Windows™ XP  
 Linux Red Hat Enterprise 4, gcc3 (not SE-FAST-IR compiler)  
 GPU: GeForce 6600 generation 6 or more (shader model 3.0)

