

- EO ✔
- AEO ●
- RF ●
- GNSS ●
- RAY ●

SE-FAST-HWIL



PUTTING HARDWARE IN THE SIMULATION LOOP

FAST ✔

Real-time image generator package designed to deliver high realistic infrared (IR) images at very high frame rates (200Hz and above) in a closed loop mode. Includes a guide and methods for optimizing 3D virtual mock-ups.

Features

- Executable-ready render engine
- Especially designed for closed loop set-up including hardware systems
- Based on the SE-Workbench-EO package for off-line preparation and on-line rendering
- Rely on CIGI network communication standard for data packets exchange between the simulator and the IG
- Dynamic control of target temperature
- Dynamic simulation of the IR seeker aerodynamic heating
- Output programmable DVI interface
- Non Uniformity Correction - NUC
- IR dome heating effect

Projection And Injection Modes Capacity

SE-FAST-HWIL can send images to an IR projector (Projection mode) or directly to an HW unity under test (Injection mode).

In Projection mode, the synthetic images simulate what the sensor should see, i.e. physically accurate images, including atmospheric propagation.

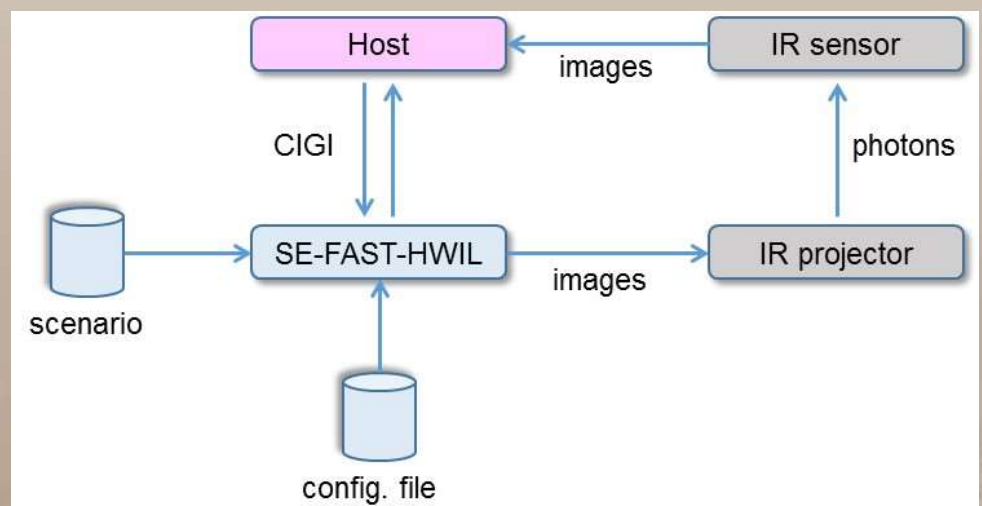


In Injection mode, both projector and real sensor are put aside.

Images are sent using standard video interface. As there is no more sensor in the loop, the generated images include sensor effects.



Communication through CIGI protocol



Benefits

- Validated IR simulation
- High Frame rate rendering
- Standardized interfaces with the outside World
- Experimented package through worldwide clients
- Customized approach to client specific needs
- On site assistance for integration and set up



System requirements

 Windows

 Linux

Comprehensive package

- CIGI interface, to connect CIGI to SE-TOOLKIT
- SE-HWIL-GRABBER, to store CIGI packets and to replay a given simulation with the exact same output
- SE-HWIL-LOG, to record and replay scenario animations
- SE-HWIL-TRAJ, to record and replay scripted trajectories
- SE-HWIL-ENCODER user-modifiable shader, to adapt the format of the output images to a given IR projector
- SE-HWIL-BENCH package, to benchmark user platform and estimate future performances
- SE-SOCKET API, to open/close a CIGI communication socket and send/receive data buffers (including programming manual)
- 3D database optimized for high frame rate
- Scenario files and environment resources for 3D database benchmarking
- Tutorials for CIGI packet management
- User manual

Cross validated simulation

Thanks to the Non-real-time and Real-time duality, validation is made using SE-RAY-IR - the ray tracing physical image processor – by measuring the difference between SE-RAY-IR and SE-FAST-IR. SE-RAY-IR results were validated against comparison with real testing campaigns.



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