OKTAL-SE
Synthetic Environment

EO
AEO
RF
GNSS

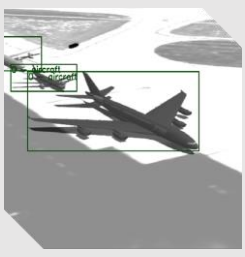
Massive synthetic dataset generation for AI

Labelled Electro-optics (visible or infrared or radar) images generation, for the training of computer vision algorithms

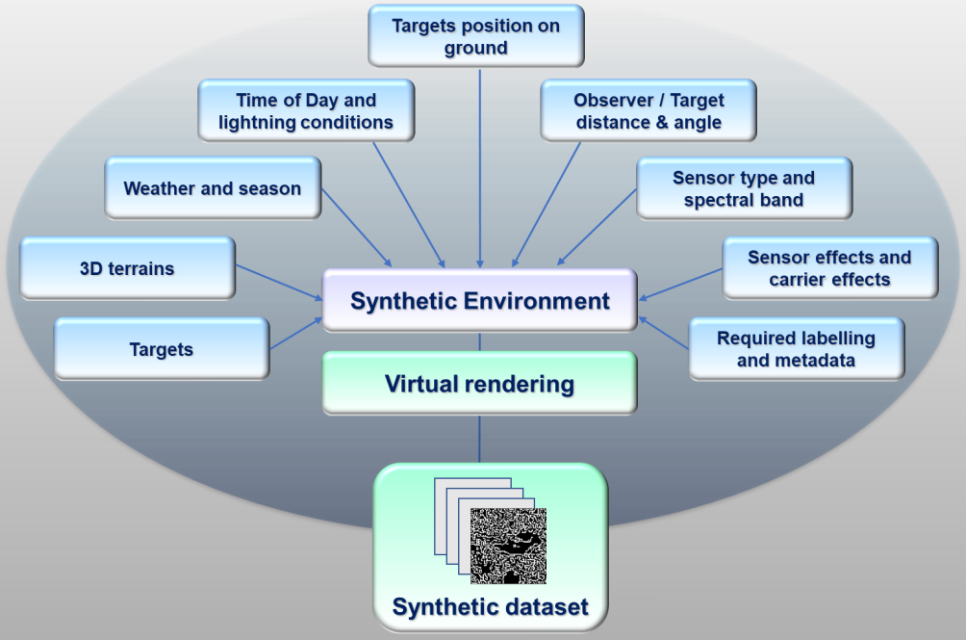
Through Physics-based simulation software, AI experts can generate a perfectly balanced dataset, composed of various operation theatres and numerous targets, represented in any possible configuration, under any weather and lightning condition. OKTAL-SE physics-based simulation software can generate images (visible, IR, RADAR), or signals (LiDAR point cloud, RADAR raw data, or GNSS signal) and their associated ground truth

Features

- Massive labelled data generation
- Various 3D terrains, available off-the-shelf, or *ad-hoc* generation
- Targets library, with local variations: configuration, thermal state, texture…
- Library of atmospheric and thermal files, for a representation of any weather and lightning conditions
- Configuration of targets positions / orientation and observer / target distances & angles
- Visible / Infrared / LiDAR / RADAR / GNSS domains covered
- Sensor effects library
- Unlimited labelling capacities: bounding box, depth map, meta-data…

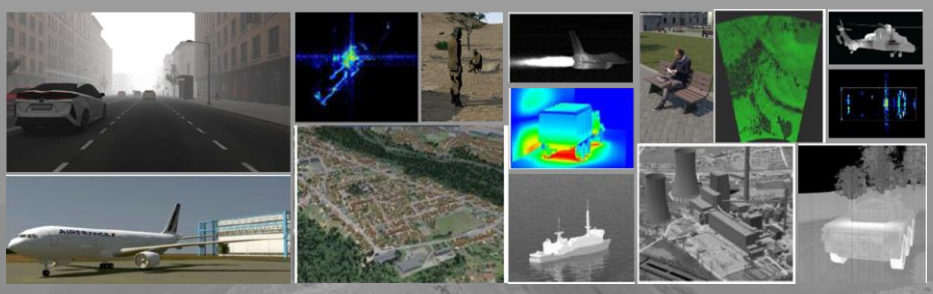


Fully customizable dataset content



Wide range of applications

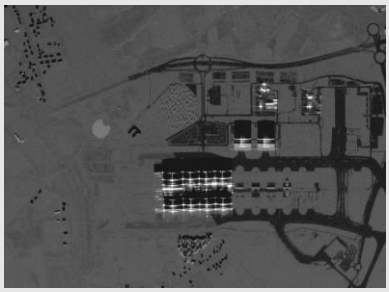
Any kind of context can be modelled, in order to address various industrial or governmental applications

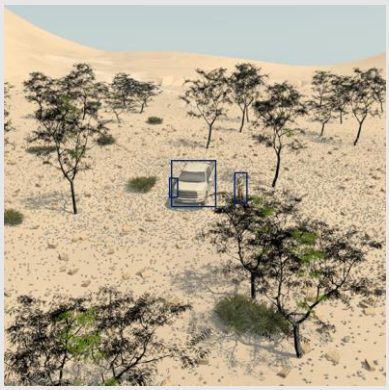


OKTAL-SE
Synthetic Environment

Benefits

- Capacity to address frugal learning challenges
- Scarce data generation: specific sensors, military context (specific targets or images), edge cases and corner cases
- Total control of the dataset content
- Exploitation of validated data and documented physical models
- Synthetic datasets can be perfectly balanced, in order to avoid overfitting issues
- Cost-effective labelling and data collection
- Pixel-wise labelling accuracy
- Great variability of labels



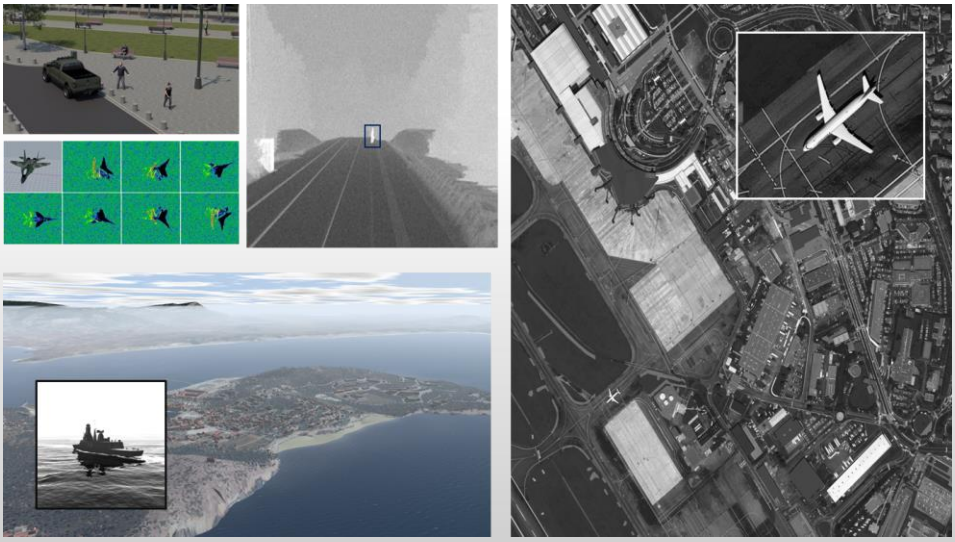


Why can we generate a great variability of images?

OKTAL-SE owns several 3D scenes in several typical environments (rural, industrial, desert….), 3D objects, physically classified, as well as a library of atmospheric, thermal, and material data

This material is used for rendering large amount of raw images before sensor and operational images after sensor

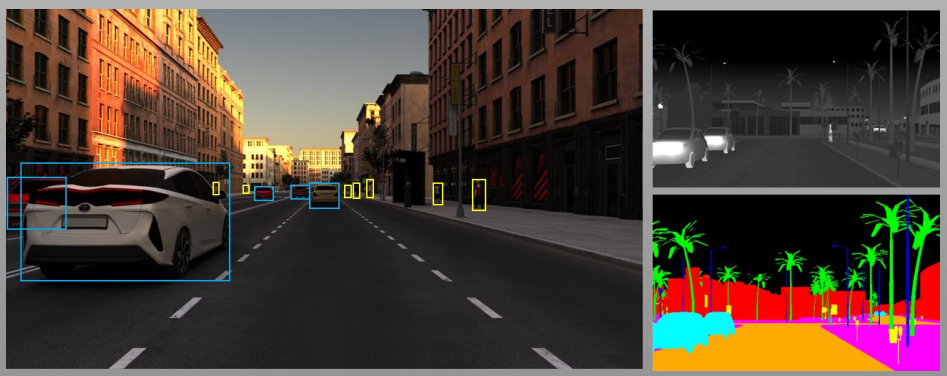
Alternatively, OKTAL-SE can generate *ad hoc* data, adapted to a specific context



Automatic labelling

As the simulation scenario is obviously the ground truth, any kind of labels and metadata can be generated, including but not limited to the below items:

- Labels: 2D or 3D bounding box, segmentation mapping, depth maps, normal mapping…
- Metadata: simulation scenario combinatorics, pixels temperature, altimetry, season, time of day, …



OKTAL-SE

11 avenue du Lac 31320 Vigoulet-Auzil France
Phone: +33 (0)5 67 70 02 00 - Fax: +33 (0)5 67 70 02 05
Mail: contact@oktal-se.fr website: www.oktal-se.com