

Objective

To build a component-based breadboard to **model** the generation of an optical signal by marine litter, propagated via the atmosphere and detected by a remote sensing satellite sensor. The model will be used to run **simulations** to characterise that signal under varying environmental conditions, such as sea state, litter type and meteorology etc., to assess the optimal sensor characteristics for the detection of marine litter to **inform future EO mission planning**.

A **modular, pluggable and extensible framework**, promoting re-use, inter-operability and configurable for different missions, sensors and scenarios with a graphical interface used to combine encapsulated widgets that use **Docker containers** that install required software and execute the workflow.

Aim to support scientists using Earth Observation Cloud-native platforms to **execute complex and reproducible workflows with minimal coding**.

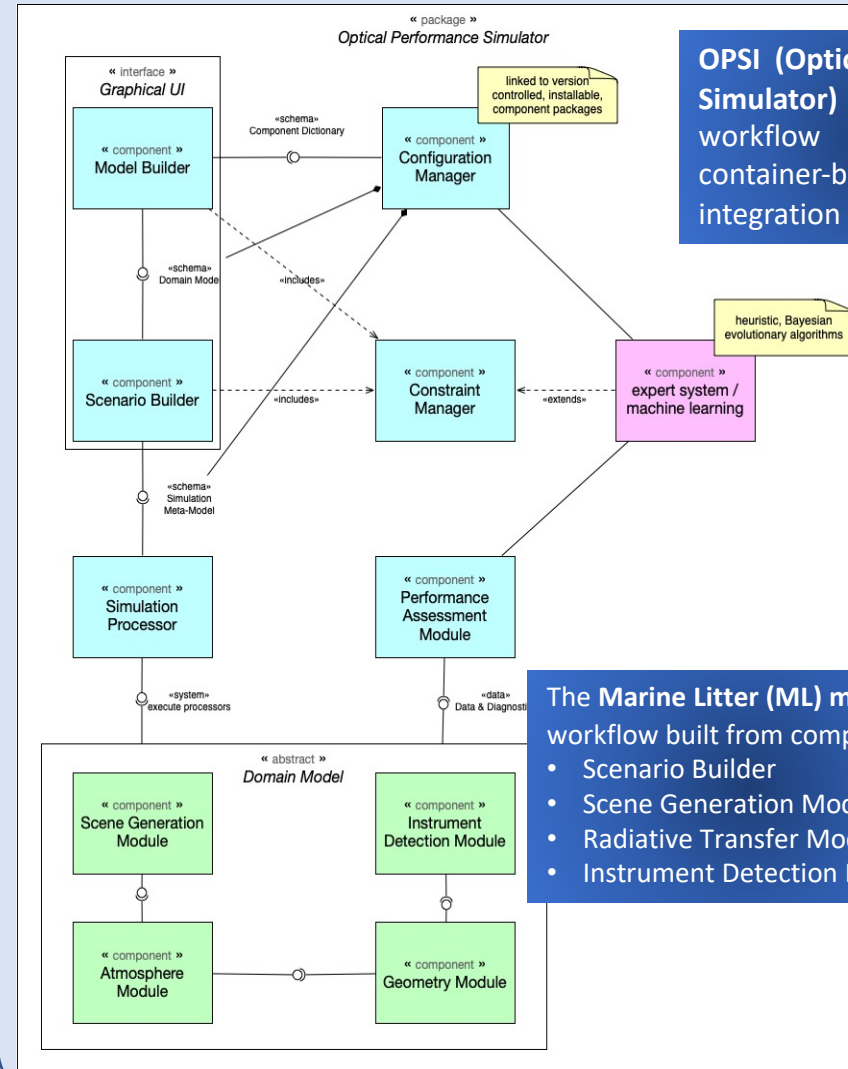
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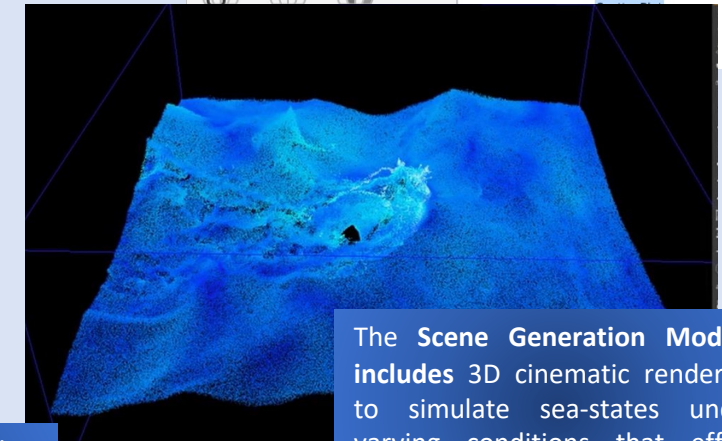
Contacts

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Design & Functional Analysis



OPSI (Optical Performance Simulator) couples a GUI workflow builder with a container-based continuous integration platform.



The **Scene Generation Module** includes 3D cinematic rendering to simulate sea-states under varying conditions that effect marine litter distribution

The **Marine Litter (ML) model** is a workflow built from components:

- Scenario Builder
- Scene Generation Module
- Radiative Transfer Model
- Instrument Detection Module

