

More Information, Less Data!

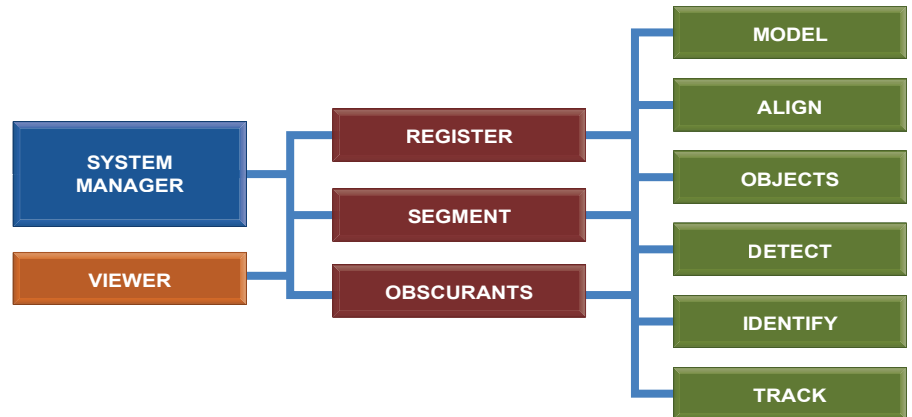
The 3DRi Software Development Kit (SDK) is a library of proprietary software algorithms that extract actionable information from OPAL scanners in real-time.

The 3DRi algorithms sift through the millions upon millions of raw 3D data points generated by the LiDAR scanner and convey only the critical information needed for real-time operations of autonomous systems. This eliminates the need for painful post-processing on a back-office system as with conventional LiDAR systems.

Intelligent software for real-time mission-critical applications

Applications Include:

- Automatic Change Detection
- Obscurant filtering
- Object Segmentation
- Object Identification
- Object Tracking



3DRi™ System Manager /API

The framework for collecting and managing 3D data from OPAL LiDAR scanners; based on an open “publish-subscribe” architecture where the various 3DRi components communicate with each other through a lightweight Ethernet-based data distribution service. This allows for rapid application development and facilitates scaling applications from one computer to a series of networked computers.

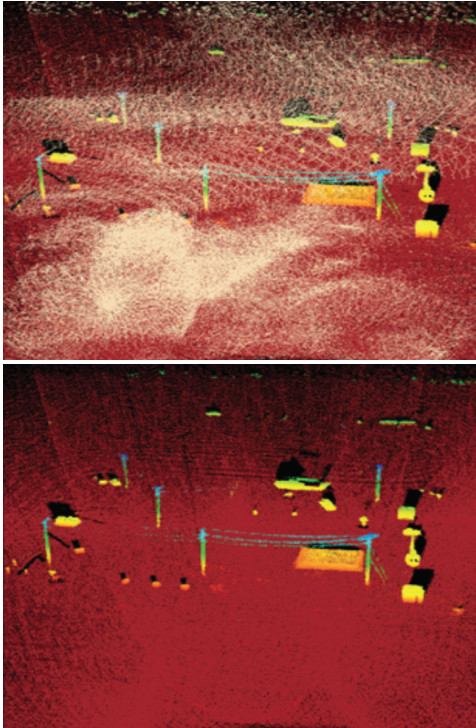
3DRi™ Viewer

An intuitive graphical user interface (GUI) used to configure and operate OPAL scanners and to manage the installed plug-in components. Scan data may be viewed live or as a logged data file for 3D point cloud visualization, data manipulation, range / elevation colourization, and basic size measurements of features in the data.



3DRi™ Core Plug-in Components

- REGISTER** – Registers 3D point clouds to external navigation data in real-time (GPS & IMU).
- SEGMENT** – Segments registered OPAL 3D data into ground and above-ground data in real-time.
- OBSCURANTS** – Enables enhanced obscurant-penetration and filtering functions in harsh environments.



Rotor craft in brown-out conditions (top)
Filtered for dust using 3DRi software (bottom)

3DRi™ Advanced Plug-in Components

A suite of advanced, feature-rich plug-ins used by OEMs and system integrators to develop intelligent real-time applications.

MODEL - Manages 3D data from multiple OPAL scanners in a single coherent database.

ALIGN - Automatically aligns 3D data using object features in multiple fields-of-view in real-time.

OBJECTS - Segments and classifies above-ground objects as stationary or moving, or by size.

DETECT - Automatically detects changes in the 3D data in real-time.

IDENTIFY - Recognizes objects using a database of known objects to provide ID, type, and confidence factor.

TRACK - Tracks objects in real-time and outputs object ID, 6DOF position, speed and heading.

Easy integration with OPAL™ LiDAR

Neptec Technologies can assist in the development of applications and solutions using the 3DRi framework and algorithms.

