



# MARINinside - your interface with MARIN hydrodynamics

A few years ago, we were asked to take care of the hydrodynamic model of a challenging, autonomous underwater vehicle, as part of a larger simulation system, to assist with operator proficiency training for Launch & Recovery operations. This was the birth of the XMF Runtime Interface (XRI): an interface around our core, time domain simulation framework.

Noël Bovens, msg@marin.nl

Since then, XRI has been used to provide high-end, hydrodynamic ship models in several projects. Examples include an advanced fall pipe simulator system for one of the leading dredging companies and six tanker ship models embedded in a third-party training simulator for one of the oil majors, which is facilitating challenging offshore marine and terminal operations with tankers and FPSOs.

Recently, we have been working on an interesting project to bridge emission reduction and engine design and testing.

Coupling our hydrodynamic ship model via XRI with a sophisticated engine model, involving an electrical motor, brings together the worlds of naval architecture and engine development. Moreover, it facilitates the design and testing of the complete engine and propulsion system for offshore operational conditions.

It enables optimisations of the entire engine room starting with diesel generators, switchboards, converters, inverters, the E-motors and finally propulsion forces, as well as emissions. Studying design

variations to optimise propulsion and minimise emissions can thus be extended much further than ever before.

MARINinside is a software development kit that allows your application to be coupled with MARIN hydrodynamics for time domain simulation. MARIN uses the exact same code for its own time domain calculations. In this way our knowledge can be incorporated in the simulation tools of our clients. —