

ICNAME Conference

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This special issue collects selected papers previously presented at the 2024 Innovation & Cooperation in Naval Architecture & Marine Engineering (ICNAME 2024) Conference, which was held at Harbin Engineering University from August 22–25, 2024. From the 200 papers presented at the Conference, a selected list was chosen to be part of this special issue. The process of selecting those papers took a bit too long, and some of the initially chosen authors did not want to submit their papers to this special issue for various reasons. The submitted papers went through the Journal's normal review process, and the approved ones are included in this special issue.

The special issue is diversified in the topics of the papers included, although the most common approach for special issues is to be very consistent in the topics addressed. This issue has papers on structures, hydrodynamics, machinery, design, guidance and control, and safety.

Related to structures, one paper (Li et al., 2026) presents a simulation of the thermal load during a fire and assesses the residual load-bearing capacity of a cabin, which is closely linked to the fire development stage. The other paper (Wang et al., 2026) deals with fracture and studies the fracture parameter evaluation using a modified peridynamics approach.

The papers on hydrodynamics show some emphasis on fluid-structure interaction problems. One paper addresses the problem of water exit of a sphere, whereas most related studies focus on water entry. The paper presents experimental results and also a CFD study that compares with the experiments. Then, a potential flow method is proposed to explain the problem.

Another paper (Silveira et al., 2026) also presents a CFD model that studies the dynamics of a lifeboat launched in free fall. Often, this is the way they are launched from offshore platforms, but also from large ships. Several simulations are conducted with different water-entry angles to determine the scenario that would allow the lifeboat to move farther from the launch position.

Still another paper (Huang et al., 2026) studies the hydroelastic response of a 20 000 TEU containership travelling in regular waves. The responses are obtained by coupling commercial CFD with a finite element code. Calculations are performed at a range of speeds and sea states up to levels 7–9, identifying the thresholds for slamming and the high-frequency hull responses.

A different type of hydrodynamic analysis (Zhou et al., 2026) studies the motions of floating platforms near a partially reflecting wall, such as a quay or a floating breakwater. It specifically studies the effect of heave plates in the reduction of the motions. The results allow an understanding of the effect of the reflective wall with the distance.

One of the papers (Reabroy et al., 2026) addresses the design of an electric-powered workboat for use in a hydro-floating solar hybrid system. The design was based on CFD analysis of the hydrodynamic performance of the vessel, and it achieved the required performance with the electric propulsion system.

One paper (Budiyanto et al., 2026) studies the aerodynamic performance of wing-in-ground craft designs inspired by flying animals and demonstrates that these configurations exhibit distinct aerodynamic characteristics consistent with their biological inspiration.

The papers on Diesel engines address various aspects. One (Zhou et al., 2026) aims to optimise the Diesel injection strategy to minimise unburned hydrogen in a Hydrogen-Diesel dual-fuel medium-speed marine engine, while the other (Shi et al., 2026) uses the Extended Kalman Filter to analyse data from various sensors in an engine, enabling real-time engine state monitoring and control.

Another paper (Malviya et al., 2026) uses a data-driven deep reinforcement learning-based path following method to develop a controller for an autonomous surface vehicle. The model is trained on data from simulations using manoeuvring

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models of varying complexity and has been shown to outperform the traditional Proportional-Integral-Derivative controller.

The safety paper (Bhardwaj et al., 2026) develops a model to explain the data of ship allisions with offshore platforms. A Bayesian Network is developed to explain the consequences of various causation effects as described in accident records. The results show that weather-related causes and misalignment errors are the factors with the strongest effects on accident probabilities.

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