

Local Communities

Institute of
Marine Engineering,
Science & Technology

IMAR^{EST}

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IMarEST BeNeLux Branch - Technical Meeting

Applications for remote wave sensing techniques

Speakers: Mr. Peter Naaijen (Next Ocean / TU Delft) & Mr. Albert Rijkens (Damen)
Positions: Assistant Professor & Product Portfolio Manager Research
Companies: Next Ocean / TU Delft & Damen Shipyards Group
Websites: www.nextocean.nl / www.tudelft.nl & www.damen.com
Date: Thursday 06 April 2017
Time: 18:30 – 22:00
Venue: Delft University of Technology – 3ME Faculty – lecture room B (Isaac Newton)
 Mekelweg 2
 2628 CD Delft
Contact: IMarESTBeNeLux@gmail.com
Parking: P-Aula or P-3ME; see campus map on <http://www.tudelft.nl/en/contact/>.

Dear member or friend,

You are hereby cordially invited to the coming Technical Meeting of the IMarEST BeNeLux Branch. Details of the programme and additional information can be found below. Your attendance to this Technical Meeting will be much appreciated. I look forward to seeing you on the 6th of April.

Would you kindly let me know if you plan to attend this event by registering [online](#). Please register before Monday 3rd of April, so I can order sufficient refreshments. Please note we have changed our policy concerning refreshments for non-members of IMarEST. We now kindly ask a contribution to refreshments costs of 5 euro's from non-members. The bank account number of IMarEST BeNeLux branch is: [NL67 RABO 0364 6179 69](#) (no refunds).

Thank you in advance.

Yours sincerely,
 P. de Vos MSc CEng CMarEng MIMarEST – Honorary Secretary IMarEST Benelux Branch.

Detailed Programme

18:30 Welcome incl. coffee; meet other attendees
 19:00 Technical Presentation – part 1: Anticipating predicted motions during offshore operations (Peter Naaijen)
 19:45 (Coffee) Break
 20:00 Technical Presentation – part 2: Automating “throttle control” for high speed crafts (Albert Rijkens)
 20:45 Discussion / remaining questions
 21:00 Drinks / Networking event
 21:45 Closure

[continue on next page]



Abstracts

Presentation 1

Waves are often the limiting factor for operability of offshore operations. Joint research at TU Delft and TU Twente and further development by the start-up Next Ocean led to a decision support tool that provides real time, on-board, time-specific prediction of waves and ship motions up to minutes ahead, using novel technology that turns any (navigation) radar into a powerful remote wave sensor.

This enables a brand new approach to operability: Instead of just assessing risks on statistical grounds, a glance into the future of the approaching waves enables us to anticipate, decide real time, on the spot: avoid operating during harsh wave groups, and grab windows of opportunity during low waves. Mitigating risks and maximizing up-time.

Presentation 2

Operators of fast ships often face the difficult challenge to maximize speed in waves while keeping vessel motions and accelerations within safe operational bounds. To achieve the best performance during high speed operation a method named "throttle control" is often applied by experienced helmsmen in which continuous throttle adjustments are made to maximize speed during periods of relatively mild waves, while speed is strongly reduced before a severe wave impact is expected.

An extensive research was initiated at the TU Delft in order to automatize this anticipatory control principle. This proactive control system uses deterministic wave data in front of the ship in order to compute the seakeeping behaviour over a short prediction horizon. In the case that certain wave impact criteria are exceeded in these predictions, additional computations are performed to find and effectuate the best combination of the instantaneous speed and orientation of the ship at the moment of wave impact. This study demonstrated that the operability of small and fast craft can be significantly improved by application of this proactive control strategy.

About the Speakers

Peter Naaijen

Peter Naaijen currently holds a position as Assistant Professor at the Ship Hydromechanics Group at TU Delft. His main research during the last decade was dedicated to deterministic ship motion prediction from navigation radar data. For further development and implementation of this technology in the industry, Peter initiated the start-up 'Next Ocean' in cooperation with TU Delft and TU Twente.

Albert Rijkens

Albert Rijkens holds the position of Product Portfolio Manager Research at the Business Unit High Speed Craft of the Damen Shipyards Group from October 2015. During the previous years he completed his PhD research at the Ship Hydromechanics and Structures Section of the Delft University of Technology. In this PhD project he designed a proactive ride control system in order to increase the operability of fast ships in head waves. In his current position at Damen he is responsible for implementing new technological developments into the Damen High Speed Craft product range and one of the focus areas is to further develop this proactive control system in order to demonstrate its potential using full scale prototype testing.