

**SEMI-AUTOMATED APPROACH FOR DETAILED LAYOUT GENERATION
GENERATION DURING EARLY STAGE SURFACE WARSHIP DESIGN**, Joan
le Poole, J J Hopman, A A Kana, Delft University of Technology, E A E
Dechateau, B J van Oers, Defence Materiel Organisation, the Netherlands

TRUSTED POINT-CLOUDS FOR SHIP RETROFIT, Gauthier Stonestreet, AVEVA,
UK

**ENERGY-EFFICIENT CROSS-LAYER OPTIMIZATION AND OFDMA RESOURCE
ALLOCATION FRAMEWORK FOR 5G SYSTEMS**, Ali M Mansoor Alsahag,
University of Malaya, Malaysia

VIBRATIONAL ANALYSIS OF CUTTER SUCTION DREDGER, Kiran Vijayan, C R
Barik, IIT Kharagpur, India

**SHIP DATA DRIVEN PROPULSION MODELS AND ENERGY SAVING
TECHNOLOGY ASSESSMENT**, John Buckingham, David Pearson, Elspeth
Storey, BMT, UK

**SMART OPTIMIZATION OF A SELF-PROPELLED PASSENGER FERRY BASED ON
ADAPTIVE GRID REFINEMENT AND DESIGN SPACE ANALYSIS**, Benoit Mallol,
Kevin Vidal, Charles Hirsch, NUMECA, Belgium

OFFSHORE SUBSTAIONS, Christian Barlach, A Thomsen, ISC, Denmark

*This is a preliminary programme, stating only the papers
that have been accepted by the Committee. The complete
selection of abstracts, and a full programme detailing the
three concurrent streams, will be available on the event's
website: www.rina.org.uk/ICCAS-2019*

FUTURE EVENTS

Wind Propulsion, 15-16 October 2019, London, UK

**Contract Management for Ship Construction, Repair &
Design**, 23-25 October 2019, London, UK

Marine Industry 4.0, 5 November 2019, Rotterdam, the
Netherlands

Full Scale Ship Performance, 29-30 January 2020, London, UK

Human Factors, 19-20 February 2020, London, UK

Damaged Ship V, 11-12 March 2020, London, UK

Design & Operation of Passenger Ships, April 2020, Athens,
Greece

Autonomous Shipping, 1-2 April 2020, London, UK

Influence of EEDI on Ship Design & Operation, 22-23 April
2020, London, UK

High Speed Marine Vehicles, 6-7 May 2020, London, UK

Warship 2020, 17-18 June 2020, UK

Offshore Marine Technology, 23-24 September 2020,
Aberdeen, UK

Smart Ship Technology, 14-15 October 2020, London, UK

Ice Class Vessels, 4 November 2020, London, UK

Historic Ships, 2-3 December 2020, London, UK



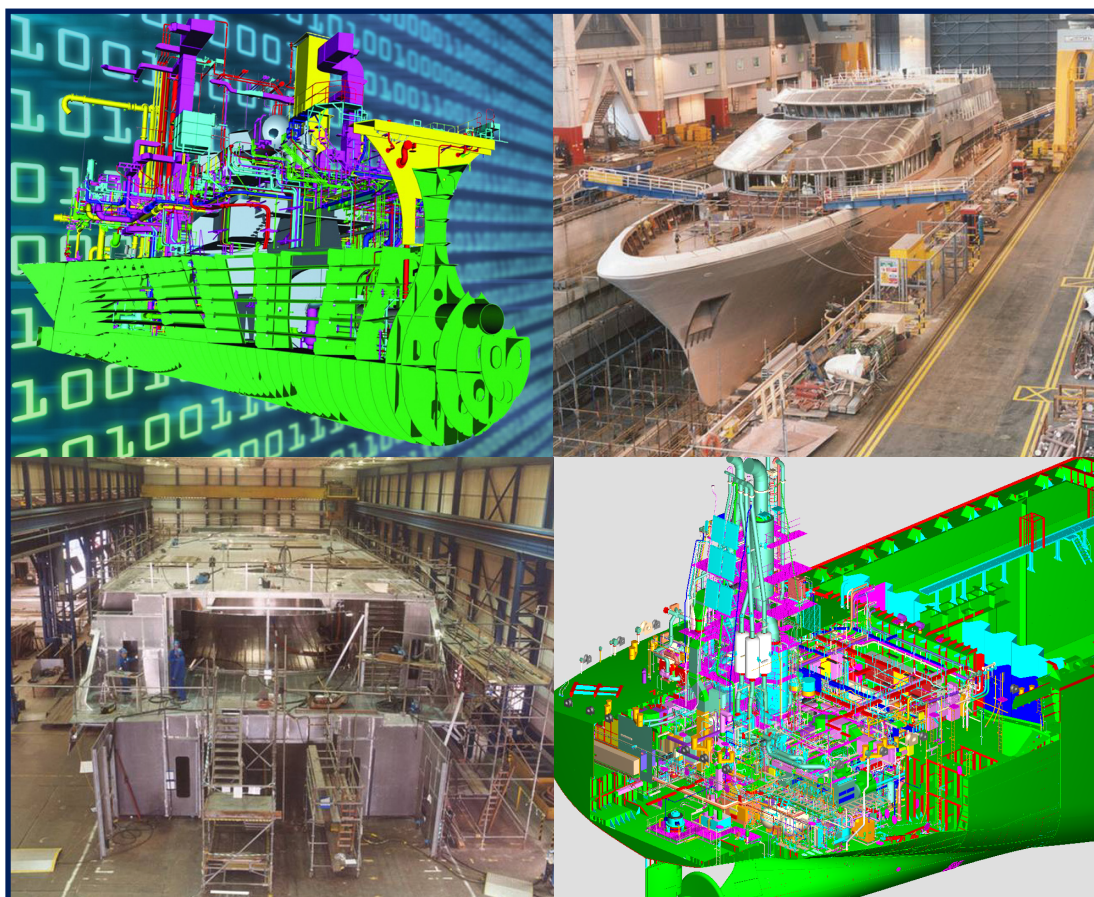
SHIPBUILDING ICCAS

ROTTERDAM | 2019

International Conference
on Computer Applications
in Shipbuilding

24 - 26 September 2019, Rotterdam, Netherlands

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THE 19th INTERNATIONAL CONFERENCE
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The 19th ICCAS conference follows the noteworthy success of the 18th ICCAS in 2017 at Singapore, in which a programme of 81 high quality papers from over 20 countries was presented to delegates.

ICCAS offers unequalled opportunity for delegates from the global shipbuilding industry to understand the practical application of advanced computing technologies across all aspects of design, production, and in-service operation of ships.



Papers will discuss the implementation, issues, success and benefits of applying computing systems in the industry to improve methodologies, processes and productivity.

Attracting a large international audience, ICCAS provides an excellent forum for companies investigating or developing computer applications in shipbuilding, and for those seeking to enhance the computing systems they use.

ICCAS contributes to knowledge retention and enhancement, a global concern across the industry, with delegates discussing common problems with peers, and young engineers meeting, questioning and discussing a wide variety of presentation topics with authors and industry experts.

Venue

The ICCAS 2019 conference will take place at The Postillion Convention Centre WTC Rotterdam:
Beursplein 37, 3011 AA Rotterdam, Netherlands

Deadlines and Key Dates

Deadline for submission of papers (Authors)	31 st July 2019
Early Bird Registration discount ends	26 th August 2019
Conference	24 - 26 September 2019

Language

The conference will take place in English.

Shipyard Visit

The conference will include an optional visit to DAMEN shipyard to be confirmed the day. Places are limited and will be allocated on a first come, first served basis.

Sponsorship & Exhibition

This conference provides an excellent opportunity to increase your organisations profile and to network with a highly focused audience. A number of cost effective sponsorship options are available, including various conference sponsorship packages, exhibition space and literature distribution. If you are interested in promotional opportunities, please contact the Conference Organiser to discuss your individual requirements.

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Rotterdam

Rotterdam is the second-largest city and a municipality of the Netherlands. It is located in the province of South Holland, at the mouth of the Nieuwe Maas channel leading into the Rhine-Meuse-Scheldt delta at the North Sea. Its history goes back to 1270, when a dam was constructed in the Rotte, after which people settled around it for safety. In 1340, Rotterdam was granted city rights by the Count of Holland. A major logistic and economic centre, Rotterdam is Europe's largest port.

Further Information:

If you have any questions regarding this conference, please contact the RINA Conference department on:

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Papers accepted for ICCAS 2019, Rotterdam:

THE USE OF FUNCTIONAL ANALYSIS TO ENSURE VALUE FOR MONEY IN COMPLEX ENGINEERING PROJECTS, *Malcolm Courts, BAE Systems, UK*

MACHINE LEARNING APPLICATIONS IN THE SMART MONITORING SYSTEM FOR SHIPBUILDING, *Kazuhiro Aoyama, Ryota Takenaka, Masayuki Irie and Kazuya Oizumi, The University of Tokyo, Japan*

LIDAR TECHNOLOGY DEVELOPMENT APPLIED TO SHIP MOTION PREDICTION (QPP) AND AIR WAKE OVER-DECK DEFINITIONS USING SIMULATION AND AT SEA ANALYSIS, *Bernard Ferrier, Hoffman Engineering, USA*

GLIMPSE TO THE FUTURE, TECHNOLOGICAL TRENDS IN THE SHIPBUILDING CAD WORLD, *Rodrigo Perez, Erno Peter, SENER, Spain*

ARE WE USING THE ENGINEERING DATA EFFICIENTLY THROUGH THE REST OF THE PROCESS?, *Marcel Veldhuizen, Hexagon PPM, the Netherlands*

MODEL BASED APPROVAL - THE OPEN CLASS 3D EXCHANGE (OCX) STANDARD, *Ole Christian Astrup, DNV GL, Norway*

GLOBAL DIGITAL HULL, *Remi Lanet, Thierry Le Gal, Lionel Le Guennic, Naval Group, France*

ENABLING BEST TOOL IN CLASS IN SHIPBUILDING, *Carsten Zerbst, PROSTEP AG, Germany*

COMBINE AND CONQUER - HOW ADVANCED IT TECHNOLOGIES COME TOGETHER FOR SHIPYARDS, *Denis Morales, Jagan Seshadri, SSI, Canada*

PLATFORM-BASED MODULAR SHIP FAMILY DESIGN AND PRODUCTION IN THE CONTEXT OF NAVAIS EU PROJECT, *Richard Audoire, Emilie Lenglet, Dassault Systèmes, France*

ESCAPE AND EVACUATION (E&E) DURING SHIP CONSTRUCTION - AN ALTERNATIVE USE OF E&E SOFTWARE, *Mark Way, Nick Brophy, Babcock International Group, UK*

APPLICATIONS & ADVANTAGES OF EMPLOYING DIGITAL SHIP DESIGN TOOLS FOR NEWBUILDING, RETROFIT AND CONVERSION PROJECTS, *Aleksander Borczyk, Mahesh Pratap Singh, NED-Project, Poland*

INTRODUCTION OF BUCKLING ASSESSMENT SOFTWARE FOR CSR REQUIREMENT, *Jong-oh Kim, Ho-gyun Park, Korean Register, South Korea*

SMARTSHIP - INCREASED PERFORMANCE OF SHIP OPERATIONS WITH NEW DIGITAL SOLUTIONS, *Gauthier Stonestreet, Antonio Retamero, AVEVA, UK*

EXTRACTION OF WELD LENGTH INFORMATION IN SHIPYARD PRODUCTION USING COMPUTER ENGINEERING AND MATHEMATICAL TOOLS FOR ENHANCED PRODUCTIVITY, *Januwar Hadi, Singapore Institute of Technology, Singapore*

VIRTUAL REALITY IN SHIP BUILDING: THREE USE CASES IN A CRUISE SHIP DESIGN PROCESS, *Marko Keber, Fincantieri Oil & Gas, S.p.A., Matteo Schiavon, Andrea Cossutta, Luca Ambrosio, Fincantieri S.p.A, Trieste, Marco Jez, Arsenal S.r.l., Italy*

GOODBYE PAPER - CAN VR/AR REPLACE PAPER FOR SHIPYARD PRODUCTION?, *Winston Pynn, The Marine Institute of Memorial University, Canada*

MULTI-OBJECTIVE OPTIMIZATION OF A SUSTAINABLE ENERGY SYSTEM FOR SMART-GRID CENTRED SHIP DESIGN PROJECT, *Sergio Ribeiro e Silva, Susana Vieira, University of Lisbon, R F P Baptista, European Maritime Transport Agency, Portugal*

THE VISUAL DIGITAL TWIN FOR SHIPBUILDING DESIGN, MANUFACTURER, AND IN-SERVICE OPERATION, *Gavin England, VIRTUALIS, UK*

APPLYING MODEL-BASED SYSTEMS ENGINEERING TO MARINE & OFFSHORE INDUSTRY, *Thibaud Colas, Gauthier Faunmy, Dassault Systèmes, France*

DEVELOPMENT OF A DATA-DRIVEN PAINT MANAGEMENT APPLICATION, *Egemen Celik, DAMEN, the Netherlands*

THE IMPACT OF EMISSION TAX SCENARIOS ON THE ECONOMIC VIABILITY OF ADVANCED SHIP DESIGNS, *Stephan Wurst, Christian Norden, Balance Technology Consulting GmbH, Germany, Bernardete Castro, Benny Mestemaker, Royal IHC, the Netherlands*

ENABLING THE DIGITAL THREAD FOR SHIPPING AND SHIPBUILDING, *Lars Wagner, PROSTEP AG, Germany*

NUMERICAL SIMULATION OF HYDRODYNAMIC IMPACT ON AN OFFSHORE WIND TURBINE STRUCTURE, *Erekle Tsakadze, Christian Barlach, ISC, E Smith, PLM Technology, Denmark*

APPLYING MODEL-BASED SYSTEMS ENGINEERING TO MARINE & OFFSHORE INDUSTRY, *Thibaud Colas, Gauthier Faunmy, Dassault Systèmes, France*

A COMPLETE TESTING SOLUTION FOR DP POWER SYSTEMS, INCLUDING VOLTAGE DIP RIDE THROUGH, *Mark Craig, Dairon Campos, OneStep Power Solutions, USA*

RESEARCH ON THE DPSO BASED METHOD FOR SUB-ASSEMBLY IDENTIFICATION IN SHIP BLOCK BUILDING, *Bo Liu, Rui Lui, Dalian University of Technology, China*

AN APPROACH TO BETTER SYNTHESISING THE DESIGN OF DISTRIBUTED SHIP SERVICES IN EARLY STAGE DESIGN OF COMPLEX VESSELS, *Muhammad Hary Mukti, Rachel Pawling, Cat Savage, David Andrews, University College London, UK*

HARNESSING PUBLICLY AVAILABLE INFORMATION WITH DATA SCIENCE TO EXTRACT THE OPERATIONAL PROFILE OF A VESSEL, *Rolf Bakker, Benny Mestemaker, Royal IHC, the Netherlands*

A SUGGESTION OF DIGITAL TRANSFORMATION PLATFORM FOR SHIP BUILDING INDUSTRY, *Jin-Hyung Park, Samsung Heavy Industries, South Korea*

INVENTORY STRATEGY OPTIMIZATION FOR MODULAR SHIP PRODUCTION, *Tom van der Beek, Delft University of Technology, the Netherlands*

AN EFFICIENT APPROACH AT HOLISTIC SHIP DESIGN'S SERVICE FOR STRUCTURAL OPTIMISATION, *Abbas Bayatfar, University of Liege, Belgium*

THE DEVELOPMENT OF SPEEDS (SMART PLATFORM OF ENHANCED ENGINEERING DATA FOR SHIPPING AND SHIPBUILDING) AND INNOVATIVE USE OF SHIP 3D DATA CROSS THE BORDERS BY CADs, *Tokimasa Hiraki, Mitsubishi Shipbuilding Co., Ltd, Kunihiro Hamada, Hiroshima University, Yoshimichi Sasaki, ClassNK, Masaru Ozaki, NTT Data Engineering Systems Corporation, Japan*

CFD ANALYSIS OF A FLOATING OSCILLATING WATER COLUMN WAVE ENERGY DEVICE, *Piyush Mohapatra, Indian Institute of Technology Kharagpur, India*

IMPLEMENTING VIRTUAL REALITY TOOLS FOR SHIP DESIGN AND BUILD, *Ken Goh, Knud E Hansen Australia, Australia*

NEW CALCULATION METHOD AND SOFTWARE FOR ENHANCED EFFICIENCY OF CONTAINER STOWAGE, *Viktor Wolf, DNV GL, Germany*

HOLISTIC SHIP DESIGN - ENABLING HOLISTIC THINKING ACROSS ORGANISATIONS WITH DIGITAL COMPONENTS, *Torben-H Stachowski, DigitRead, Norway*

DIGITAL CONTINUITY, *Oussama Chouche, Dassault Systèmes, USA*

ASNET - A SIMULATION FRAMEWORK TO SUPPORT THE EARLY STAGE DESIGN OF NAVAL SHIPS, *Francesco Perra, CETENA, Massimo Paolucci, University of Genoa, Italy*

LARGE CRUISE SHIP PRODUCTION MODELLING IN A COLLABORATIVE DESIGN ENVIRONMENT, *Damir Kolich, Lovro Kvadranti, University of Rijeka, Croatia, Richard Lee Storch, University of Washington, USA*

STUDY ON HULL LINE FAIRING BASED ON CATIA, *Hu Yong, Liu Yongjie, Chong Wang, Chaoyan, Wuhan University of Technology, China*

DEVELOPMENT OF PRODUCT MODEL DATA EXCHANGE BETWEEN DIFFERENT 3D CAD SYSTEMS FOR HULL DESIGNING, *Tokimasa Hiraki, Mitsubishi Shipbuilding Co., Ltd, Japan*

INTEGRATING VIRTUAL REALITY SOFTWARE INTO THE EARLY STAGES OF SHIP DESIGN, *Christopher-John Cassar, Giles Thomas, Nick Bradbeer, University College London, UK*

THE COMBINED USE OF DOPPLER LIDAR AND COMPUTATIONAL FLUID MECHANICS IN MARITIME AIR-WAKE STUDIES, *Chris Ward, J Horton, Frazer Nash Partners, Michael Belmont, J Christmas, University of Exeter, J Duncan, J M Duncan, MoD, UK, B Ferrier, Hoffman Engineering, USA*

AGNOSTIC G1 HULL FORM GENERATION FROM CURVE NETWORK FOR 3D SHIP CAD, *Wangseok Jang, Seoul National University, South Korea*

ACHIEVING THE DIGITAL SHIP: FROM DESIGN TO OPERATION, *Jesus Angel Munoz, Alicia Ramirez, SENER, Spain*

THE OPTIMIZATION OF SHIP COASTAL ROUTING BASED ON THE OCEAN ENVIRONMENT, *Wonhee Lee, Seoul National University, South Korea*

INTRODUCING OPERATIONAL INFORMATION INTO EARLY STAGE SHIP DESIGN FOR INTERNAL LAYOUT AND PROCESS DRIVEN SHIPS USING QUEUING NETWORKS, *Koen Droste, Hans Hopman, Austin A. Kana, Delft University of Technology, Bart van Oers, Defence Materiel Organisation, the Netherlands*

ACCURATE AND TIMELY SHIP DESIGN PROPOSAL DEVELOPMENT USING PRODUCT LIFE-CYCLE MANAGEMENT, *Donald Gillikin, USA, Bern Ulstein, Norway*

MACHINE LEARNING APPLICATIONS IN THE SMART MONITORING SYSTEM FOR SHIPBUILDING, *Kazuhiro Aoyama, Ryota Takenaka, Masayuki Irie, Kazuya Oizumi, The University of Tokyo, Japan*

PRACTICAL USE CASES OF AI APPLICATION IN THE SHIP DESIGN STAGE, *Rafael de Gongora, Jesus Angel Munoz, SENER, Spain*

PLANNING TOOLS FOR QUIESCENT PERIOD, *Michael Belmont, University of Exeter, UK*

AN AGENT-BASED SIMULATION MODEL FOR THE CROWD ON PASSENGER SHIPS, *Yapeng Li, Wei Cai, Wuhan University of Technology, China, Austin Kana, Bilge Atasoy, Delft University of Technology, the Netherlands*

PROCESS INTEGRATION OF STRUCTURAL DESIGN PROMOTED BY 3D MODEL BASED APPROVAL, *Yoshiaka Shimakawa, Yasushi Miura, Japan Marine United Corporation, Takayoshi Masui, NAPA, Tatsuya Hayashi, Motoki Sakagami, Class NK, Japan*

AN INTERACTIVE LAYOUT EXPLORATION AND OPTIMISATION METHOD FOR EARLY STAGE SHIP DESIGN, *Bojan Igrec, Rachel Pawling, Giles Thomas, University College London, Adam Sobey, University of Southampton, UK*

A DEVELOPMENT OF WEB APPLICATION FOR VIEWING SPEEDS FORMAT USING X3D, *Koya Murata, Hajime Kimura, Kyushu University, Japan*

A SIMULATION FOR BLOCK LIFTING USING FLEXIBLE MULTIBODY DYNAMICS, *Taichi Arai, Altair Engineering Ltd, Japan*

COLREGS-COMPLIANT MULTI-SHIP COLLISION AVOIDANCE VIA DEEP REINFORCEMENT LEARNING, *Luman Zhao, Myung-Il Roh, Hye-Won Lee, Do-Hyun Chun, Sung-Jun Lee, Seoul National University, South Korea*

COLLABORATION IN VIRTUAL REALITY: DESIGNING BETTER SHIPS, *Robert Spencer, Stirling Labs, Australia*

ASSESSMENT OF MACHINE LEARNING ALGORITHMS FOR ACTIVE HEAVE COMPENSATION, *Tim Holzki, Berlin Institute of Technology, Germany*

AUGMENTED REALITY PROJECT FOR PIPES CONTROL, *Yann Boujou, Julien Brisset, Pascal Guillas, Naval Group, France*

APPLICATION OF FREEFORM SURFACE UNFOLDING METHOD BASED ON LINES OF CURVATURE, *Masahito Takezawa, National Maritime Research Institute, Japan*

EMPOWERING THE WORKFORCE OF THE FUTURE WITH A CULTURE OF KNOWLEDGE AND KNOW-HOW ENABLED BY DIGITAL EXPERIENCE PLATFORMS, *Alexander Tew-Kai, Dassault Systemes, France*

A DIGITAL TWIN IS NOT A DIGITAL TWIN: AN ATTEMPT TO CLEAR THE FOG, *Jose Esteve, Bureau Veritas, France*

VIRTUAL REALITY: TOOL OR TOY IN SHIPBUILDING?, *John Martin, SAMOS Ltd, UK*

ABOUT IMPORTANCE OF INPUT DEVICES IN VIRTUAL REALITY, USED IN CAD ENVIRONMENT, *Gordan Sikic, USCS, Croatia*

APPLICATION OF COMPUTING TECHNOLOGY IN SHIP RECYCLING, *Yashwant Kamath, K Sivaprasad, S Jayaram, Cochin University, India*

JOINT SUPPORT SHIP PROJECT - APPROACH TO 3D MODEL REVIEW, *Tim Harold, Raymond Clinkard, Department of National Defence, Canada*

SIMULATON OF HULL PANEL LOGISTICS IMPROVEMENT IN A SHIPYARD, *Arun Dev, Newcastle University, Singapore*

RESEARCH ON MULTI-INDEX EVALUATION OF SHIP CONSTRUCTION PROCESS BASED ON DATA MINING, *Kai Li, Manting Liu, Zhichao Zhao, Dalian University of Technology, China*

GAME ENGINES - THE REAL HEART OF DIGITAL TWINS?, *David Thomson, AVEVA, UK*

NEW RELATIONS BETWEEN PROFESSIONALS AND WORK'S ORGANIZATION INTRODUCED BY COMPUTER APPLICATIONS, SPECIAL VESSELS CASE STUDY, *Valerio Ruggeiro, University of Messina, Italy*

ARTIFICIAL INTELLIGENCE IN EARLY SHIP DESIGN, *Ananth Padmanabhan, Govindra Singh, SeaTech Solutions International (S) Pte Ltd, Singapore*

DEVELOPMENT OF A DATA-DRIVEN PAINT MANAGEMENT APPLICATION, *Egemen Celik, Annemarie Ruitenbergh, Sander Knecht, Damen Schelde Naval Shipbuilding, The Netherlands*

CFD ANALYSIS OF A FLOATING OSCILLATING WATER COLUMN WAVE ENERGY DEVICE, *Piyush Mohapatra, Indian Institute of Technology Kharagpur, India*

AS-BUILD DOCUMENTATION BASE ON SCAN DATA, *Christian Barlach, ISC, Denmark*

IMAGED-BASED OBJECT DETECTION AND TRACKING METHOD FOR SHIP NAVIGATION, *Sung-Jun Lee, Daewoo Shipbuilding and Marine Engineering, South Korea*

MULTIBOAT. EVOLUTION OF SHIP SERIES AND IMPLICATIONS IN DESIGN APPLICATIONS, *Antonio Velasco, Rodrigo Perez, SENER, Spain*

SIMULATION MODEL FOR PROJECT DURATION ESTIMATION CONSIDERING IMPACTS OF DELAY AND REWORK, *Kazuo Hiekata, University of Tokyo, Japan*

DEVELOPMENT OF FEEDBACK WORK SUPPORT SYSTEM OF PRESS WORK FOR SHEET METAL FORMING, *Kohei Matsuo, National Maritime Research Institute, Japan*

PLATFORM-BASED MODULAR SHIP FAMILY DESIGN AND PRODUCTION IN THE CONTEXT OF NAVAIS EU PROJECT, *Richard Audoire, Emilie Lenglet, Dassault Systemes, France*