

# **4th International Conference on Computer and IT Applications in the Maritime Industries 2005**

**(COMPIT 2005)**

**Hamburg, Germany  
8-11 May 2005**

**ISBN: 978-1-61567-596-8**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

This work relates to Department of the Navy Grant N00014-05-1-1058 issued by Office of Naval Research Global. The United States Government has a royalty-free license throughout the world in all copyrightable material contained herein.

Printed by Curran Associates, Inc. (2009)

For permission requests, please contact Volker Bertram at the address below.

Volker Bertram  
9 Rue St Thomas  
F-29800 Landerneau  
France

Phone: 02 98 34 87 65  
Fax: 02 98 34 87 30

[Volker.bertram@ensieta.fr](mailto:Volker.bertram@ensieta.fr)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## Index

Martha Grabowski <i>Impacts of Next Generation Ship Navigation and Communication Systems</i>	5
Jörn Hinnenthal, Øyvind Saetra <i>Robust Pareto – Optimal Routing of Ships utilizing Ensemble Weather Forecasts</i>	17
Martijn C. Schut <i>Distributed Ship Scheduling with Partially Known Time Windows</i>	24
Sigurd Hildebrandt <i>Integrated Information Management and Computer Aided Production Planning</i>	37
Heike Vogeley, Frank Laue, Ulrich Killat <i>Planning of Stowing Activities for Container Ships</i>	49
Antonio Pinto, Emilio Campana <i>A Multi-Swarm Algorithm for Multi-Objective Ship Design Problems</i>	62
Marina Uhanova, Leonid Novitsky <i>Application of Modeling and Internet Technologies in Marine Insurance Business Processes</i>	77
Wilfried Abels <i>Combining Object-Oriented and Procedural Programming in Software</i>	88
Lawrence Henesey <i>A Simulation Model for Analysing Terminal Management Operations</i>	100
Christian Nedeß, Axel Friedewald, Nils Kerse <i>Increasing Customer's Benefit using Virtual Reality (VR) - Technologies in the Design of Ship Outfitting</i>	113
Olle Blomberg, Margareta Lützhöft, James M. Nyce <i>AIS and the Loss of Public Information</i>	123
Tim W. Lowe <i>The Design of PDE Hull Surfaces using Genetic Algorithms</i>	136
Sofie M.M. Bernaert, Ubald Nienhuis, Reinier Rijke, Rick van Tol <i>Simulation of Production in a Shipyard's Machining Centre</i>	148
Berend Bohlmann, Thomas Gosch <i>New Approaches to Ship Vibration Analysis in the Design Phase</i>	159
Marcus Bentin, Kunihiko Hamada, Mitsuru Kitamura <i>Multi Objective Optimization for the Master Plan of Cooperative Assembling with Several Shipyards including Planning Risk as Objective</i>	166
Leo van Ruijven, Ubald Nienhuis <i>A Data-Driven Integrated Knowledge Framework for the Total Ship Life Cycle</i>	181
Iñigo Gurrea, Carlos González <i>Trends in Hull Structure Design - A Practical Approach: From Initial to Detailed Design, Tools for the Design Process</i>	196

Jenny Coenen, Robert Hekkenberg, Ubald Nienhuis, Jan Jaap Nieuwenhuis <i>Parameter-Related Evaluation of Engineering Processes in Shipbuilding</i>	205
Jonathan M. Ross, Runar Aasen <i>Weight-Based Cost Estimating During Initial Design</i>	220
David Jaramillo, Henning Schier <i>Integrated Data Exchange for Emergency Response</i>	230
Reinhard Müller, Michaela Demuth <i>Knowledge-Based Advisory System for Manoeuvring Large Ships in Restricted Waters</i>	237
George Bruce <i>Developments in E-commerce in Shiprepair and Conversion</i>	243
Mitsue Morishita, Shinsuke Akagi <i>Hull Form Optimization for Fast Ships Using Simulated Annealing (SA) Method</i>	250
Martin-Christoph Wanner, Björn Weidemann <i>Web-based Management Tools for Collaboration</i>	258
Ulf Cantow, Robert Bronsart, Ventzeslav Petkov <i>ISO 10303-214 Core Data for Automotive Mechanical Design Processes – A Product Model to be used in the Maritime Industry?</i>	272
Frédéric Bair, Yves Langer, Jean-David Caprace, Philippe Rigo <i>Modelling, Simulation and Optimization of a Shipbuilding Workshop</i>	283
H. Bruce Bongiorno, Matthew D. T. Williamson, Timothy F. Miller, Jonathan A. Peters <i>An Integrated Design Environment for the Navy Using an Agent Model of Marine Design</i>	294
Tomasz Abramowski, Tadeusz Szelangiewicz <i>Development of Integrated On-board Expert System for Ship's Dynamics</i>	307
Zbigniew Pietrzykowski, Jaroslaw Chomski, Janusz Magaj <i>A Proposal of a Ship's Cooperation and Communication System</i>	314
Abraham Guyt, Ubald Nienhuis, Jan van der Wagt <i>Enabling Integrated (Concurrent) Design – Exploring ICT Architectural Issues and Realization Scenarios</i>	321
Duncan Gould <i>Overview of the Assessment Process for Software within the Marine Sector</i>	336
Marcus Bole <i>Integrating Parametric Hull Generation into Early Stage Design</i>	349
Jayanta Majumder, Dracos Vassalos, Luis Guarin, Guro C. Vassalos <i>Modelling and Simulation of Shipboard Environment and Operations</i>	364
Eberhard Blümel, Marco Schumann <i>Using Virtual Design, Test, and Training Platforms during the Life Cycle of Complex Technical Systems</i>	377
Robert Bronsart, Michael Zimmermann <i>Knowledge Modeling in Ship Design using Semantic Web Techniques</i>	381

Dirk Steinhauer <i>SAPP – Simulation Aided Production Planning at Flensburger</i>	391
Bastiaan N. Veelo <i>The Potential of Free Software for Ship Design</i>	399
Yves Langer, Maud Bay, Yves Crama, Frédéric Bair, Jean-David Caprace, Philippe Rigo <i>Optimization of Surface Utilization using Heuristic Approaches</i>	419
Mirosław Gerigk <i>Safety Assessment of Ships in Critical Conditions using a Knowledge-Based System for Design and Neural Network System</i>	426
Andrew Mason, Patrick Couser, Garth Mason, Cameron R. Smith, Brian R. von Kinsky <i>Optimisation of Vessel Resistance using Genetic Algorithms and Artificial Neural Networks</i>	440
Helge Rathje, Christian Beiersdorf <i>Decision Support for Container Ship Operation in Heavy Seas – Shipboard Routing Assistance</i>	455
Hans-Günther Mütze, Jonas Brånhult, Ulf Eriksson, Mats Westenius <i>Overcoming the Obstacle of a Sequential Transition Between Structural and Detail Design</i>	468
Daniele Peri, Emilio Campana <i>Optimization for Safety and Comfort</i>	477
Tanja Richardt, Stefan Harries, Karsten Hochkirch <i>Manoeuvring Simulations for Sailing Yachts using FRIENDSHIP-Equilibrium as an Open Modular Workbench</i>	487
Zbigniew Pietrzykowski, Janusz Uriasz <i>Methods and Criteria of Navigational Situation Assessment in an Open Area</i>	500
Lazlo Vajta <i>Unknown Object Localization and Identification in Shallow Water by Use of Autonomous Robots</i>	510
Hugo Grimmelius <i>Real-Time DP Control for a Towing Tank Model: Education and Research Possibilities</i>	522
Arthur Vrijdag, Douwe Stapersma, Tom van Terwisga <i>Cavitation Inception in Operational Conditions</i>	533
Tom Kirk, Larry Benthall <i>ABS Leverages IT Collaboration Technology to Provide Online Plan Approval Services</i>	548
Index of authors	558