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Autonomous Inland
& Short Sea Shipping

Autonomous Inland and Short Sea Shipping Conference

AISS 2024

10th and 11th September 2024

Conference Program

**Competence Centre for Autonomous Inland and Short Sea
Shipping**

Venue: Niederrheinische Industrie- und Handelskammer
(Chambers of Commerce) Duisburg-Wesel-Kleve
Mercatorstrasse 22-24, 47051 Duisburg / Germany,
<https://www.ihk-niederrhein.de>

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Tuesday, 10th September 2024

- 13:00 **Welcome and Registration**
- 14:00 **Opening**
- 14:10 **Keynote Lecture:** Finnland Halleman
Automation on French inland waterways - an overview of VNF's initiatives
Voies Navigables de France, Béthune, France
- 14:50 Patrick Specht¹, Cyril Alias², Lea Corbeck², Jakob Ovens¹, Michael Seifert²
Envisioning the future of autonomous shipping: Introducing consistency-based scenario modelling for strategic foresight
¹Institute of Shipping Economics and Logistics, Bremen, Germany
²Development Centre for Ship Technology and Transport Systems, Duisburg, Germany
- 15:15 Espen Johansen Tangstad
Autonomous Ship Developments in Horizon Europe
SINTEF Ocean, Norway
- 15:40 **Coffee break**
- 16:10 Dennis Höhn, Matthias Steidel, Christina Tsiroglou
Sovereign and secure sharing of information in the maritime domain: An analysis of involved actors and requirements
German Aerospace Center, Institute Systems Engineering for Future Mobility, Oldenburg, Germany
- 16:35 Rupert Henn, Stefan Schweig
Predictor-Corrector Approach to Path Control for Inland Vessels
DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany
- 17:00 Jinhan Kong, Ian Karez, Dongze Wang, Torsten Jeinsch
Enhanced Inland Vessel Detection Using CNN-Based Deep Learning and Lidar Technology
University of Rostock, Lehrstuhl Regelungstechnik, Rostock, Germany
- 19:00 **Conference Dinner**

Wednesday, 11th September 2024

09:00 **Registration**

09:30 **Opening**

09:35 M. Khalis Mohd Fadil, Ian Karez, Torsten Jeinsch
Constructing Waterways Map using a LiDAR-inertial odometry with Incremental Smoothing for Surface Vessel: Considering Waterways related Disturbance
University of Rostock, Lehrstuhl Regelungstechnik, Rostock, Germany

10:00 Iulian Filip¹, Robin Herrmann², Sebastian Gehrig³, Thilo Lenhard³, Daniel Medina¹, Markus Gardill², Ralf Ziebold¹
Performance Evaluation of LIDAR and Automotive RADAR for Inland Waterway Navigation and Mapping
¹German Aerospace Center (DLR), Institute of Communications and Navigation, Neustrelitz, Germany; ²Electronic Systems and Sensors, BTU Cottbus-Senftenberg, Cottbus, Germany; ³InnoSenT GmbH, Donnersdorf, Germany

10:25 Utku Pazarci, Alexander Puzicha
Pose-Graph based MSIS SLAM for Autonomous Vessels
TU Dortmund University, Chair for Modelling and Simulation, Dortmund, Germany

10:50 **Coffee break**

11:20 Florian Gschwandtner¹, Jonathan Specht¹, Alexander Lutz¹, Thomas Meurer²
Collision Avoidance for Inland Navigation Using Black-box-optimization
¹Argonics GmbH, Stuttgart, Germany; ²Digital Process Engineering Group, Institute for Mechanical Process Engineering and Mechanics, Karlsruhe Institute of Technology, Karlsruhe, Germany

11:45 Paul Lee, Gerasimos Theotokatos, Evangelos Boulougouris
Robust Decision-Making for Maritime Autonomous Surface Ships Reactive Collision Avoidance
Maritime Safety Research Centre (MSRC), Department of Naval Architecture, Ocean & Marine Engineering, University of Strathclyde, Glasgow, UK

12:10 Olena Shyshova¹, Pooja Gadhavi¹, Matthias Tenzer², Foghor Tanshi³, Dirk Söffker¹
Preparation for takeover: A discussion about limits for take over in highly automated systems using the experimental example of takeover situations on highly automated inland waterway vessels
¹University of Duisburg-Essen, Chair of Dynamics and Control, Duisburg, Germany; ²DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany; ³University of Duisburg-Essen, Dept. of Electrical/Electronic Engineering, Duisburg, Germany

Wednesday, 11th September 2024 (cont.)

- 12:35 Thomas Jan Hornig, Markus Mizael Moser, Tim Reuscher
Three-Stage Predictive Warning System for Human Takeover of Automated Inland Vessels
RWTH Aachen University, Chair of Automatic Control, Aachen, Germany
- 13:00 **Lunch break**
- 14:00 Nikolas Schaal, Ramon Sieber
Optimal speed as a basis for fuel-efficient autonomy
Shiptec AG, Lucerne, Switzerland
- 14:25 Alexander Puzicha
Automatic emission and detection of sound signals for maritime navigation
TU Dortmund University, Chair for Modelling and Simulation, Dortmund, Germany
- 14:50 Marvin Glomsda, Eva Spachholz, Frederic Etienne Kracht
Risk Assessment for Inland Vessels with Various Levels of Automation
University of Duisburg-Essen, Chair of Mechatronics, Duisburg, Germany
- 15:15 Youjun Yang, Bettar el Moctar
A Fourier-based mathematical model for ship-ship interactions during overtaking for application in manoeuvring
University of Duisburg-Essen, Institute for Sustainable and Autonomous Maritime Systems, Duisburg, Germany
- 15:40 **Closing**