

CISMaRT

CANADIAN NETWORK FOR INNOVATIVE SHIPBUILDING, MARINE RESEARCH AND TRAINING | RÉSEAU CANADIEN POUR L'INNOVATION DANS LA CONSTRUCTION NAVALE, LA RECHERCHE MARINE ET LA FORMATION

Workshop on Autonomous Surface Ships

In Partnership with



November 27-28, 2019

Convention Centre
1000 Boulevard René-Lévesque East
Québec City

Overall objectives of the workshop:

- CISMaRT Updates
- Establish the Canadian context for autonomous shipping – opportunities, types of applications
- Identify the challenges – commercial, regulatory, and technical
- Determine the research needs to address challenges

November 27, 2019

08:00 – 08:30	Breakfast	Room 306B
08:00 – 08:30	Registration	
8:30 – 9:45	<ul style="list-style-type: none"> • Objectives and Scope of the Workshop • CISMaRT Updates 	All presentations will be in Room 306A.
9:45 – 10:10	<i>Update on Underwater Noise and Other Transport Canada Innovation Centre Initiatives</i> (Speaker: Abigail Fyfe, Transport Canada)	<ul style="list-style-type: none"> • The Innovation Centre and current initiatives • Underwater vessel noise • Green marine projects
10:10 – 10:40	Coffee Break	Hallway
10:40 – 11:20	<i>Autonomous Shipping in Canada and the CFMASS Initiative</i> (Speakers: Bruce Kelly, Transport Canada Howard Posluns, Transport Canada Fraser Winsor, National Research Council)	<ul style="list-style-type: none"> • Introduction • TC vision and inter-agency collaboration • CFMASS • CFMASS Sub-Committee on Test/Research and Development
11:20 – 12:00	<i>Autonomous Ships – 2019 and Beyond</i> (Speaker: Jim Covill, Lloyd's Register Canada)	<ul style="list-style-type: none"> • Autonomous shipping – where are we now? • The various levels of autonomy • Autonomy in other industries • Thinking points: legal, technical, societal acceptance, workforce adjustment, potential benefits • Risks – identifying and mitigating
12:00 – 12:10	Group Photo	Urban Space

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12:00 – 13:00	Lunch	Room 306B
13:00 – 13:30	<i>Technology Aspects of Autonomous Shipping</i> (Speaker: Ørnulf Jan Rødseth, SINTEF, Norway)	<ul style="list-style-type: none"> • Current state of relevant technology • Technology gaps and challenges
13:30 – 14:00	<i>Regulatory Framework for Autonomous Shipping</i> (Speaker: Henrik Tunfors, Swedish Transport Agency)	<ul style="list-style-type: none"> • Regulating smart ships <ul style="list-style-type: none"> - Challenges for regulators - Policy labs as as interim and long-term solutions • IMO regulatory scoping exercise on Maritime Autonomous Ships (MASS) <ul style="list-style-type: none"> - Background, objective - Status and possible future work of IMO - Possible common gaps, themes • Test and trials
14:00 – 14:30	<i>Next-Generation Wireless Communications for Autonomous Surface Ships</i> (Speaker: Dave Michelson, UBC)	<ul style="list-style-type: none"> • Ship-to-ship and ship-to-shore communications • Next generation marine communications • Lessons from autonomous land vehicles
14:30 – 15:00	Coffee Break	Hallyway
15:00 – 15:30	<i>Port Operations With Autonomous Ships</i> (Speaker: Vince den Hertog, Robert Allan Ltd.)	<ul style="list-style-type: none"> • Pilotage and ship-handling operations with autonomous ships • Impact on port traffic & fleet composition • Requirements for port infrastructure • Planning and preparation activities by major ports • Threats, challenges and opportunities for waterfront operators
15:30 – 16:00	<i>Changes in Shipboard Human Factors with the Advent of MASS</i> (Speaker: John Cross, Marine Institute, Memorial University)	<ul style="list-style-type: none"> • The changing work environment of ships • Results from previous studies on ship's workforce and MASS • Current and planned studies. • Proposed timeline for mariner workforce changes • Future workforce needs to support MASS
16:00 – 16:30	<i>DND Research on Autonomous Systems</i> (Speaker: Roscoe Klinck, Innovation for Defence Excellence and Security Program - IDEaS)	<ul style="list-style-type: none"> • The IDEaS Program • Summary of research projects on autonomous systems
16:30 - 17:15	General Discussion	Room 306A
18:00 – 19:30	Reception	Urban Space

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Morning Sessions

8:30 – 9 :00	Breakfast	Room 306B
9:00 – 9:30	<i>An Operators Perspective on the Role of Autonomous Technology in our Domestic Trade Today</i> (Speaker: Dave Belisle, Algoma Central Corporation)	<ul style="list-style-type: none"> Technologies for autonomous operations Advantages of incremental implementation Operational benefits Maintenance issues
9:30 – 10:00	<i>Autonomous Lake Freighter: An AI Path to a Sustainable Future</i> (Speaker: Thiru Vikram, Buffalo Automation)	<ul style="list-style-type: none"> Role of AI in MASS Demo showing exponential AI performance improvement with more data being fed. Critical role that smart infrastructure will play in MASS unlike that of self-driving cars.
10:00 – 10:30	Coffee Break	Hallway
10:30 – 11:00	<i>International Initiatives on Autonomous Shipping</i> (Speaker: Roger Basu, Roger Basu & Associates Inc.)	<ul style="list-style-type: none"> MUNIN Project ReVolt Yara Birkeland Etc.
11:00 – 11:30	<i>Autonomous Surface Ships for Canadian Waters</i> (Speaker: Roger Basu, Roger Basu & Associates Inc.)	<ul style="list-style-type: none"> Autonomous ships in Canada Current activity in Canada Canadian capability
11:30 – 12:00	<i>Overview of Breakout Sessions and Goals</i>	<ul style="list-style-type: none"> Facilitator: Roger Basu

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Afternoon Sessions

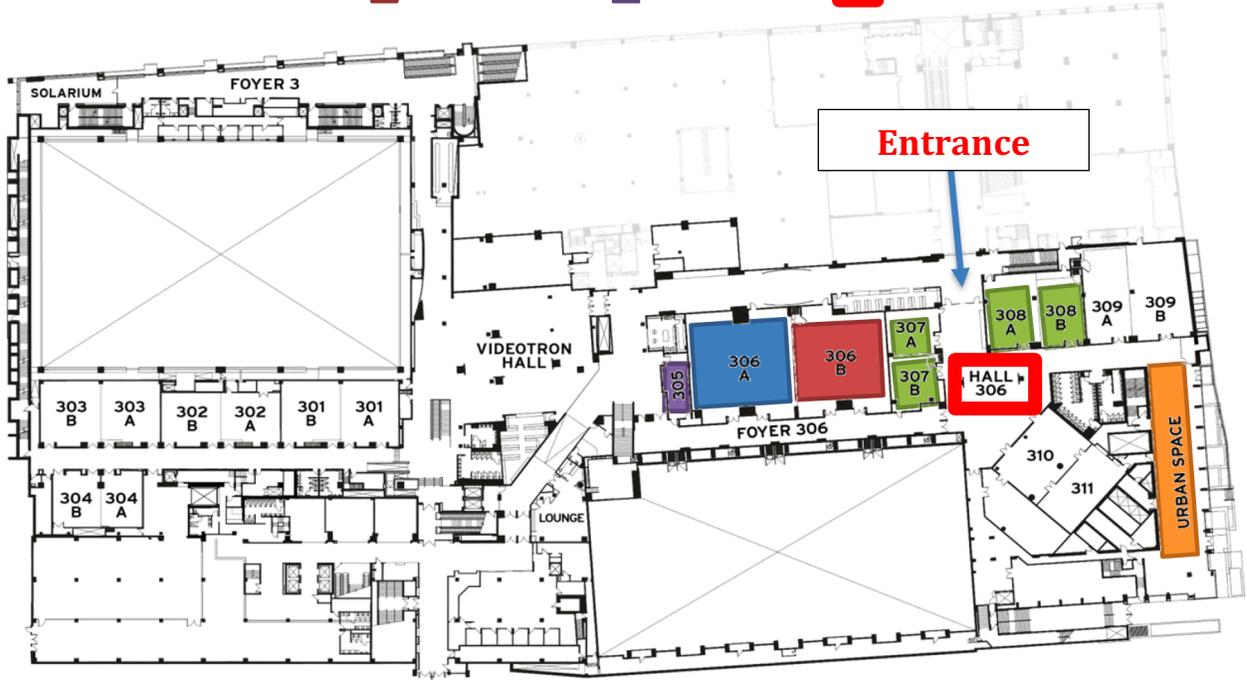
12:00 – 13:00	Lunch	Room 306B
13:00 – 14:45	Brainstorming Session	<ul style="list-style-type: none"> It is anticipated that five groups will be formed. Where possible, each will have participants with similar backgrounds. All groups will be asked to address a set of general questions. In addition, there will also be a set of questions unique to each group and consistent with the general expertise of the group. Each breakout group will brainstorm what needs to be done to address the challenges in their subject area. The results of the brainstorming session will be presented to the workshop.
Group 1: Room 306A	<p>Participants will be formed into groups and will brainstorm a number of issues concerned with autonomous shipping. General aspects of autonomous shipping will be discussed as well as challenges and aspects specific to Canada. The groups will be formed taking account, where possible, of the expertise and background of the participants. Among the topics of interest are:</p> <ol style="list-style-type: none"> <i>Development and application of autonomous shipping in Canadian waters.</i> <i>Infrastructure, such as central control centre, and regulatory framework needed to support autonomous shipping.</i> <i>Technology challenges associated with ship design, i.e., how will ship systems design need to be changed to address the needs of autonomous shipping?</i> <i>Technology challenges associated with ship operations, i.e., advanced communications systems, sensor technology, security systems will be needed.</i> <i>Feedback on the presentations on establishing an asset map of capabilities resident in Canada.</i> <i>Identification of projects that could usefully be performed in Canada.</i> <p>Each group will identify all the relevant issues in each category and will be asked to identify potential projects to address the challenges they have identified. The projects will be prioritized.</p>	
Group 2: Room 307A		
Group 3: Room 307B		
Group 4: Room 308A		
Group 5: Room 308B		
14:45 – 15:15	Coffee break	Hallway
15:15 – 16:15	Presentations by each brainstorming group	Room 306A
16:15 – 16:45	General session to prioritize the projects identified during the brainstorming session	Room 306A
16:45 – 17:00	Closing remarks	Room 306A

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Level 3

- Plenary room
- Breakouts
- Reception
- Meal Room
- Office
- Coffee break



Floor Plan