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Applied Research

6TH ENERGYDATA WORKSHOP

THE FUTURE OF MARINE TECHNOLOGY

Live from COVE on Feb 18, 2022

Agenda

FEBRUARY 18, 2022 - 9:00 AM -12:30 PM AST

9:00 - 9:05	WELCOME REMARKS
9:05 - 9:20	TWO-EYED SEEING
9:20 - 9:50	ENERGY STORAGE IN MARINE APPLICATIONS – PROS, CONS AND REALITIES
9:50 - 10:05	AUDIENCE Q&A
10:05 - 10:35	DECARBONIZING THE MARINE SECTOR
10:35 - 10:50	AUDIENCE Q&A
10:50 - 10:55	NSCC OCEAN TECHNOLOGY STUDENTS PRESENT CAPSTONE PROJECTS
10:55 - 11:25	HYDROGEN FUEL FOR VESSELS
11:25 - 11:40	AUDIENCE Q&A
11:40 - 12:15	HOW DATA IS DRIVING THE MARINE SECTOR
12:15 - 12:30	AUDIENCE Q&A

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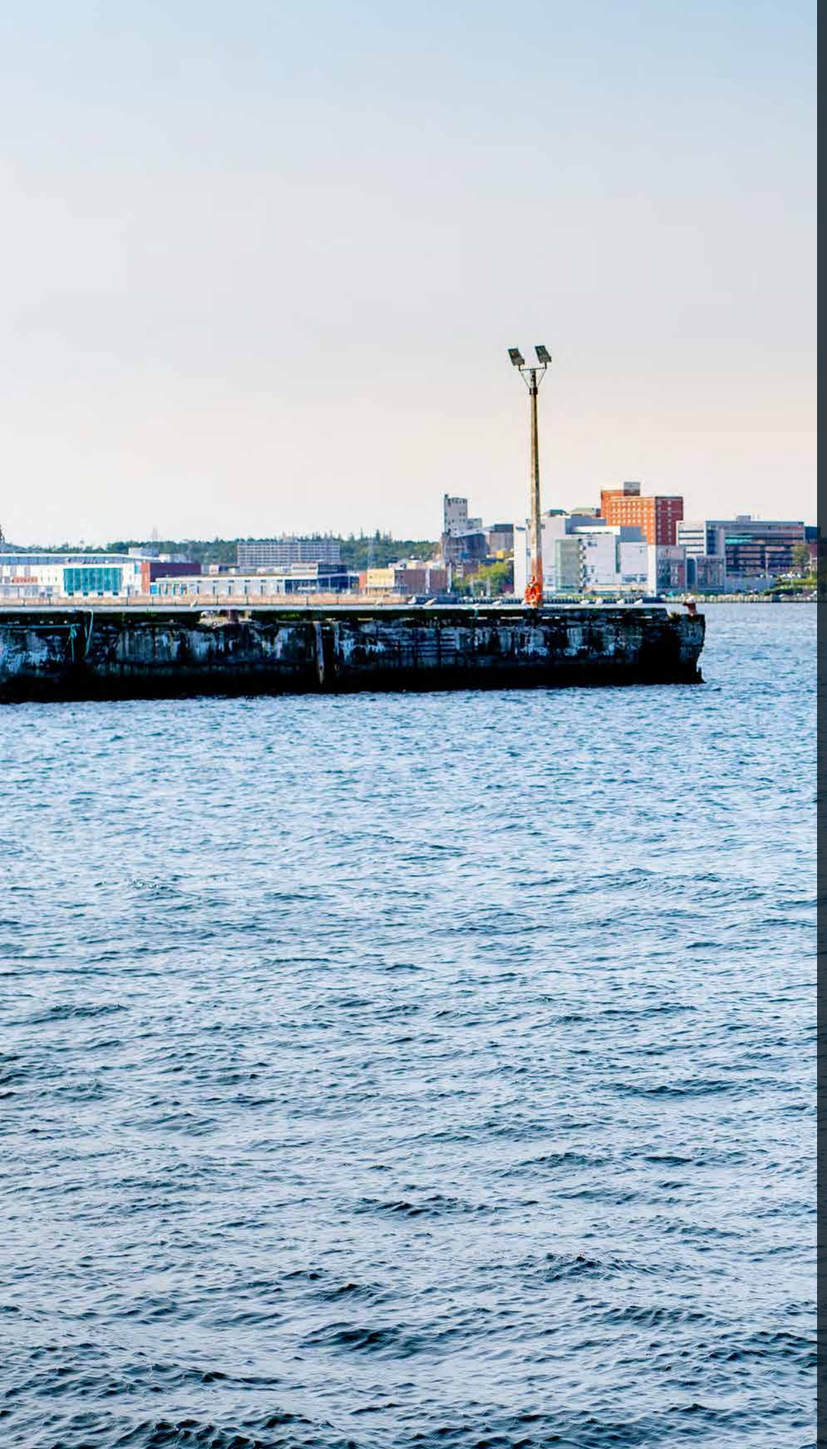

Welcome

On behalf of Nova Scotia Community College, we're thrilled to welcome you to the 6th EnergyDATA Workshop. This is a forum for those working in the energy and data community to connect and update one another on findings.

Through applied research, the College is playing a key role in the development of sustainable ocean technologies and services. This year's workshop theme ties in with our upcoming Clean Marine Propulsion Lab and the types of projects NSCC's ocean research and development centre, SEATAC, is supporting.

Dr. Wayne Groszko

RESEARCH SCIENTIST

John Stratton

SEATAC DIRECTOR

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Two-eyed seeing

Adam Kennedy

FOUNDER OF SMA'KNIS MARITIME SAFETY & SECURITY

Growing up in the Annapolis Valley First Nations Adam spent a lot of his time on the water. This led Adam to serve with the Canadian Royal Navy. During his time in the Navy Adam was a boatswain where he gained experience operating RHIBS and other medium sized vessels. Adam then transferred to Military Police; this gave him the opportunity to build on his security knowledge and ability to react appropriately to any situation.

Upon retiring from Military Police work, Adam founded Sma’knis Maritime Safety & Security.

Giveaway!

After the event, attendees will be emailed a short post-event survey. A name will be drawn from surveys submitted.

The winner will receive a 'Good Value' food box from PieceMeal Food Provisions. If the winner is unable to pick up the box at local locations, it will be donated to a family in need.

NSCC GRAD LAUNCHES LOCAL MEAL-KIT BUSINESS

PieceMeal Food Provisions offers produce, spices, sauces and recipes, all in guilt-free packaging.

Energy storage in marine applications – pros, cons and realities

Chris Kruger

AYK ENERGY
DIRECTOR

Mr. Kruger is an electrical engineer by training and spent 12 years in the semiconductor industry before deciding to move to batteries. In 2008 he and his team developed the first traction battery for the Fisker Carma series hybrid automobile. He joined Corvus in 2010 as their director of engineering and developed the first DNV, LR and ABS type approved battery for marine propulsion in the industry. From there he joined PBES as their CTO in 2015 and developed their high-power battery.

In 2018 he started AYK and developed an energy battery that obtained DNV type approval in 2021.

Edward Carney

AYK ENERGY
GLOBAL HEAD OF SALES

Edward Carney is Global head of sales and marketing for AYK Energy. A marine engineer with more than 30 years in the maritime industry. Ed started out sailing, working at sea on various vessel types before coming ashore as head of technical operations for a large cruise line.

He came over to the commercial side 10 years ago and has been involved with marine energy storage for over 5 years, having worked hands on as a commissioning and service engineer as well as in business development and sales.

Decarbonizing the marine sector

Brent Perry

SHIFT CLEAN ENERGY
CEO

Brent Perry is the CEO of Shift Clean Energy and a marine battery industry pioneer. Perry defined an industry when he oversaw development of the world's first battery for marine propulsion. Energy storage systems are now a major – and increasingly important – player on the global marine energy scene. In the years since that first battery, he has become a world expert on lithium energy storage in marine applications.

His 30-year history in commercial shipbuilding and deep knowledge of energy systems gives him a unique perspective on the hybrid and electric marine industry.

Sue Molloy

GLAS OCEAN ELECTRIC
PRESIDENT

Dr. Sue Molloy is at the helm of GlasOcean Electric, a business committed to scaling clean energy to coastal waters. Well known for her extensive work in the marine renewable energy sector, Dr. Molloy is the driving force behind the Alutasi electric boat conversion.

As a lead investigator of numerous ocean research initiatives, an expert in ship propulsion and an award-winning Canadian representative for IEC and ISO, Sue brings her passion for marine sustainability to create Canada's first Transport Canada Marine Technology Review Board approved passenger boat using lithium-ion batteries. Dr.Molloy and her team are committed to reducing greenhouse gases (GHG) and pollution in our coastal communities through the introduction and increased uptake of electric boats.

Hydrogen fuel for vessels

Jason Aspin

ASPIN KEMP AND ASSOCIATES
CEO AND CTO

Jason Aspin co-founded Aspin Kemp and Associates in 1996. Since graduating in marine engineering from the Canadian Coast Guard College in 1987 with specializations in power engineering and systems integration, he has built over 35 years of progressive experience in systems engineering in the Industrial, Marine, and Offshore environments. As an innovator, he dedicates his time to designing solutions which are both socially and environmentally responsible often introducing energy storage technologies to new applications.

He has collaborated with other global innovators to develop new technologies of which several have been patented and have made a significant contribution in reducing the environmental footprint, increasing reliability, and reducing operating costs for land-based and marine power generation systems around the world.

Paul Jamer

BREAKWATER GROUP
PRESIDENT

Paul Jamer is a Marine Engineer with operational experience as a ship's officer, a project manager, engineering superintendent and business owner. He has also been a successful consultant to marine and shore-based clients around the world.

Working with both public and private organizations, Paul has gravitated toward leadership roles involving the development, implementation, and ongoing support of leading-edge technologies. Paul was instrumental in the development and successful deployment of several environmentally conscious marine technologies, including the world's first hybrid power generation and propulsion systems.

As president of the Breakwater Group, he is focused on providing specialized marine and advanced technology consulting services.

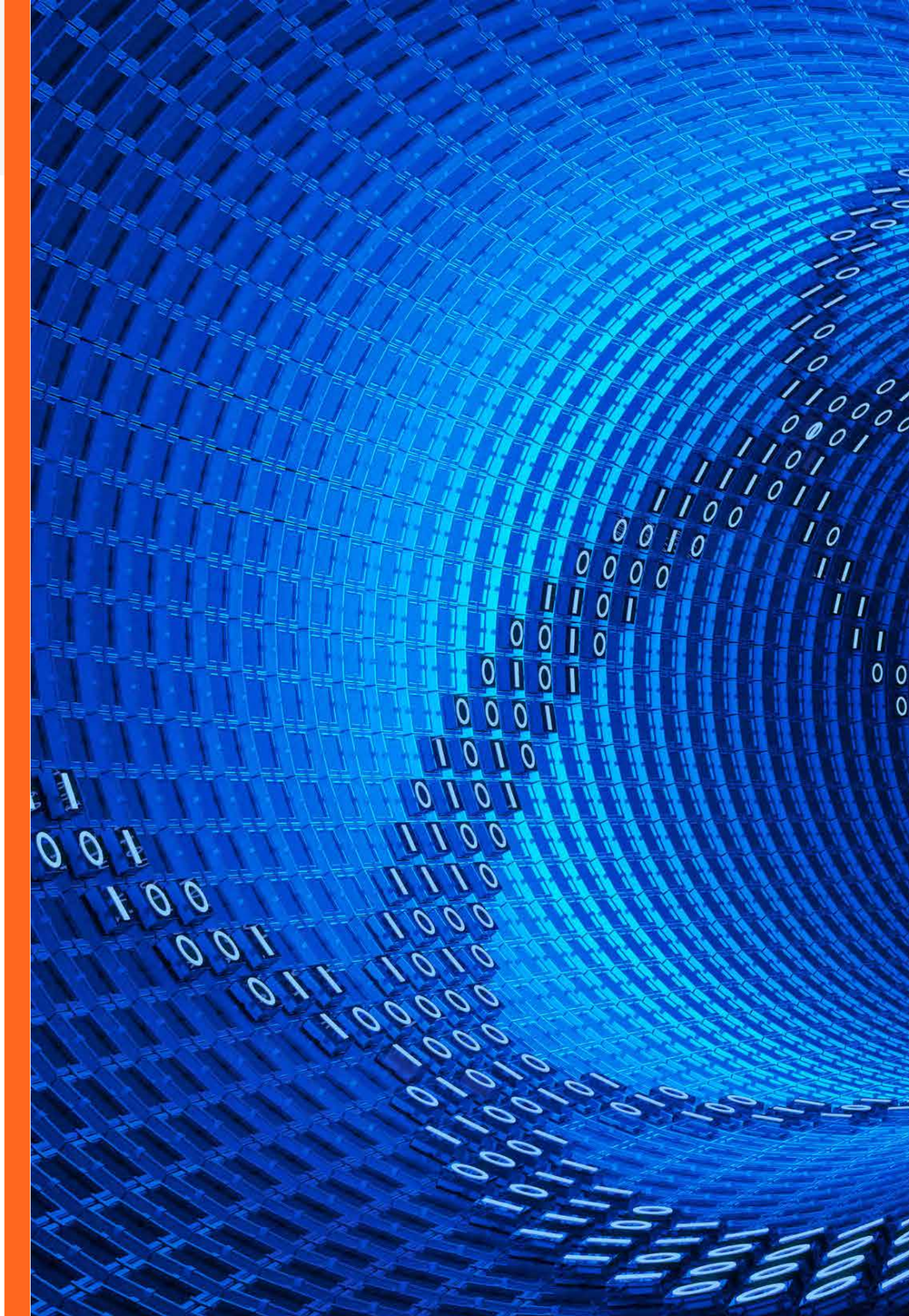
Hydrogen fuel for vessels

Dan Pearce

DR DANIEL PEARCE.
R&D MANAGER, CMB TECH

Daniel Pearce started his career in the automotive sector, working on control systems for heavy duty fuel injectors at Delphi Diesel Systems. He worked in various departments within Delphi including Development, Test rigs, Instrumentation and Systems. He has extensive knowledge of high pressure fuel systems and completed his experimental PhD at Imperial college on compressible fluid dynamics in 2017.

More recently he has worked on Hydrogen injection systems for BorgWarner before moving to CMB Tech as the research and development manager. As head of R&D, he is developing a number of emerging technologies such as hydrogen monofuel, diesel/hydrogen dual fuel and ammonia combustion for both power and propulsion applications.



How data is driving the marine sector

Barry Stevens

3D WAVE DESIGN
PRESIDENT

As a Mi'kmaq Acadia First Nation community member, Barry has held positions in both management and engineering roles in advanced development laboratories, anti-submarine warfare product design, HF communications, business development and consulting, training, product sales, and production management. At his last place of employment, he was V.P. of Operations.

In 2001, Barry launched Stevens Solutions & Design and has supplied communications and custom electronic hardware designs/software solutions for use in corporate communications, instruction and eLearning, security, defence, government agencies, global corporations, non-profits, and Indigenous organizations.

Jennifer LaPlante

DEEP SENSE
EXECUTIVE DIRECTOR

Jennifer LaPlante is the Executive Director of DeepSense, an organization focused on driving economic growth through increased comprehension and adoption of artificial intelligence in the Canadian ocean sector.

She holds an MBA and an MSc in Computing and Data Analytics. Jennifer is a member of the Public Awareness Working Group under the Government of Canada Advisory Council on AI and is a co-organizer of the Halifax Chapter of Women in Machine Learning and Data Science (WiMLDS), a global organization that aims to support and promote women and gender minorities who are practicing, studying or are interested in the fields of machine learning and data science.

How data is driving the marine sector

Matthew Garvin

TEAM LEAD, MARINE OPERATIONS
AUTONOMY & SAFETY
NATIONAL RESEARCH COUNCIL

Matthew Garvin is the Team Lead for the Marine Operations Autonomy & Safety research team at the National Research Council. His primary research area involves developing sensor systems that can assess sea ice conditions in real time. The short term goal is to provide this information to captains to help them make good navigation decisions. In the longer term, some of this navigation decision making could be automated.

Matthew works closely with researchers developing techniques for effectively displaying information to decision makers and researchers developing methods for autonomous navigation decision making. The overall goals of this work are to reduce the likelihood and severity of marine accidents.

Dr. Timothy Webster

NSCC
RESEARCH SCIENTIST

Tim has been a research scientist with NSCC's Applied Geomatics Research Group since 2000. Tim previously worked in the private sector for a GIS software developer in Ottawa before becoming a faculty member at NSCC's Centre of Geographic Sciences (COGS).

With expertise in lidar and other high-resolution remote sensing and Geographic Information System (GIS) techniques, Tim's work focuses on mapping, monitoring and modelling processes in the coastal zone, with an emphasis on flood risk and erosion.

Continuously expanding his research efforts in the area of climate change and flood risk, Tim also works with coastal communities located on major river systems where the threat of heavy-rainfall runoff events can combine with higher sea levels of storm-surge events that compound the flood-risk issues.

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