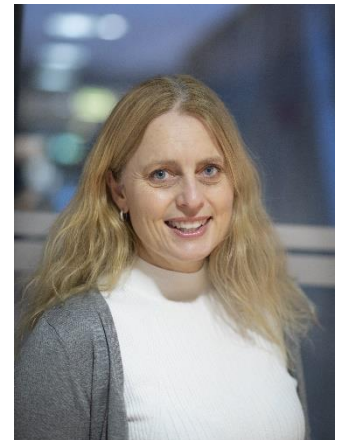




SFI AutoShip Spring 2022 Newsletter

We are already over two months into the new year and SFI AutoShip is growing in size as well steadily increasing research activities. Recently the SFI Board accepted two new partners to the Consortium: Fugro and Reach Subsea. You can read more about them later on in this newsletter. We have also received two more PhDs and one more postdoc to the SFI team. Welcome to all of them! On the administrative side I am sorry to tell you that our administrative coordinator Elisabeth will be leaving us at the end of March. She will be missed. I will get back to you on who will be taking over her role.



I hope we can put the constraints of the pandemic behind us and I look forward to having more physical meetings. Enjoy the spring and remember to read our annual report which will be available on our website on April 1st!

Mary Ann Lundteigen

Centre director SFI AutoShip

News topics:

- Two new partners
- Meet two of our new PhDs
- Meet our new postdoc

Two New Partners: Fugro and Reach Subsea

Fugro is an internationally operating company that covers several services: marine site characterization, land site characterization and marine and land asset integrity. The history of Fugro goes back to 1962 and today the company has around 9000 employees, including an innovation department of 400 people. Offices in Norway are in Trondheim, Bergen and Oslo. Fugro is currently operating and extending a fleet of remotely piloted surface and underwater vehicles, which are partially built inhouse with Fugro control algorithms. They operate a series of remote operations centers (ROCs) around the world (one is located in Norway).

Fugro is expected to fill the SFI's need for a service provider by sharing their practical experience with USVs in operation and their launch and recovery of UIDs (unmanned intervention drone). Since Fugro develops its own control system, piloting and autonomy functions, it will be a 'real-world' developing partner for SFI, and it can also give access to their ROCs, surface and underwater vehicles for simulation and testing and also share relevant data.



Reach Subsea is a Norwegian listed company with headquarter in Haugesund. Reach Subsea delivers data and subsea solutions, and has evolved from the oil and gas sector. This includes ownership of Remotely Operated Vehicles (ROV's) and operation of these from surface vessels. More recently, the company has directed its focus into the blue economy, on developing smaller remotely operated and/or partly autonomous surface vessels with a size of 25 meters, referred to as Reach Remote, to replace the need for larger vessels to support remote subsea operations. This effort is made in partnership with Kongsberg Maritime, Wilhelmsen and Massterly. The order of the first vessel is scheduled to be placed in early 2022 and the USV is planned to be delivered late 2023.

As a partner in SFI AutoShip Reach Subsea will fill the need as a service provider for offshore support operations and it is expected that they will be able to share valuable data from their USV operations.

Meet the PhD candidate Luka Grgičević

Luka Grgičević is a PhD candidate at the Department of ICT and Natural Sciences at NTNU Ålesund. He will be working in Work Package 3 focusing on Digital Twins for Autonomous Vessels. His main research plan will begin with a test environment for potential novelties in Explainable AI algorithms, which might be the core of Decision Support Systems. Furthermore, together with his colleagues, he will further continue the development of a simple and feasible COLREG compliant collision avoidance.



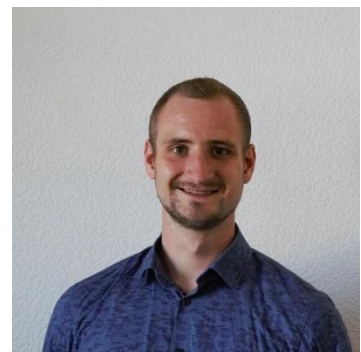
He has a masters' degree in Control Engineering and Automatization from the University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture in Croatia. His master's thesis was modelling a small vessel in 3DOF in Matlab for positioning purposes. He implemented two algorithms for Weather optimal heading control and compared the integral of the course error. The vessel's stability, on the circle's perimeter, was indeed increased with the larger circle's radius.

When asked about his motivation for accepting a position as a PhD candidate in SFI AutoShip he replied: "I must thank my master's thesis mentor, Darko Stipaničev, for drawing my interests towards control of objects in and on the water. My motivation continued to grow since February 2021. Thanks to the well written and comprehensive literature I learned from, this engineering field is indeed exciting. After spotting a published call, I didn't believe that I will work with the world experts in marine technology and be a part of such a welcoming environment."

We welcome Luka to the SFI AutoShip Team!

Meet the PhD candidate Daniel Menges

Daniel Menges is a PhD candidate at the Department of Engineering Cybernetics at NTNU. He will be working in Work Package 1, focusing on "Situational Awareness and Collision Avoidance". In particular, he will develop methods for better perception and description of the ship's surroundings and design a control approach for collision avoidance utilizing the improved perception. In addition, he will collaborate on building a digital twin of an autonomous ship to validate the developed algorithms in a safe environment.



He has a master's degree in Mechanical Engineering from the Karlsruhe Institute of Technology, focusing on automation and robotics. Based on his enthusiasm for control theory, he mainly specified in cybernetical modules. In his master's thesis, he developed adaptive control approaches for regulating the bus voltage in microgrids.

When asked about where his interest in this area comes from, he answered: "Since I was a child, I have frequently spent time on ships on vacation. I have a great passion for the sea and intelligent autonomous systems. Therefore, this position offers me a unique opportunity to combine my interests with one of my hobbies. I am highly looking forward to being part of the SFI AutoShip project."

Welcome to SFI AutoShip, Daniel!

Meet the postdoc Taufik Akbar Sitompul

Taufik Akbar Sitompul is a postdoc at the Department of Design, NTNU. He will be working in Work Package 3, where he will be investigating the design of human-machine interface that would allow operators to remotely control port cranes in a safe and efficient manner. He found this research project interesting, as it is related to what he did for his PhD. His PhD research was about how to design human-machine interface for mobile cranes and excavators that would allow operators to see information near their line of sight.



He received his bachelor's degree in multimedia studies from the National University of Malaysia, master's degree in service design from both Aalto University, Finland and University of Trento, Italy, and PhD in computer science from Mälardalen University, Sweden. Before joining NTNU, he was also involved in few EU-funded initiatives, such as EIT Digital, Startify7, EUDAT, and ImmerSAFE.

We welcome Taufik to the SFI Team!

Contact Us

Don't hesitate to contact us if you have ideas on topics for the next newsletter or any other suggestions.

Elisabeth Strand Vigtel, Coordinator SFI AutoShip

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