



MOSES

Exploitation workshop on
MOSES AutoDock System

Testing Platform



TU CO
YACHT VÆRFT

Søren Pedersen



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Pilot Demonstration 1

Pilot Demonstration 1: Autodock

Partners: TUCO (Lead), NTUA, CORE, ESI, SAT, DNV, AST, PCT, TRELL

Objectives:

- Showcase the automated maneuvering, docking, and mooring scheme for large ports

Innovation:

1. Operating with autonomous swarm tugboats
2. The re-engineering of TRELL automoor unit
3. The intelligent system, which secures the automated docking by the cooperation between the swarm tugboats and automoor unit.

Pilot Demonstration 1

The pilot will run in three phases:

- 1) Assessing the level of automation for the tugboats
- 2) Assessing tugboats swarm intelligence
- 3) Assessing the collaboration of the autonomous tugboats with the automated mooring system within the mooring process of a large containership.

Testing Site



Testing Platform

- **Barge** illustrating containership
- 2 TUCO **workboats** illustrating tugboats
- Re-designed **Automoor** unit
- **Electronic equipment** supporting the test
- **Software** program for autonomous and swarm operation plus cooperation with automoor unit
- **Shore** control station



Testing Platform

- Demonstrator 1: W x L = 11,5 x 3m
- Propulsion: 2 x 330 HP (diesel)
- Manual controlled



- Demonstrator 2: W x L = 11,5 x 4 m
- Propulsion: 2 x 48,5kW (Electrical)
- Autonomous



Testing Platform

- Automoor unit

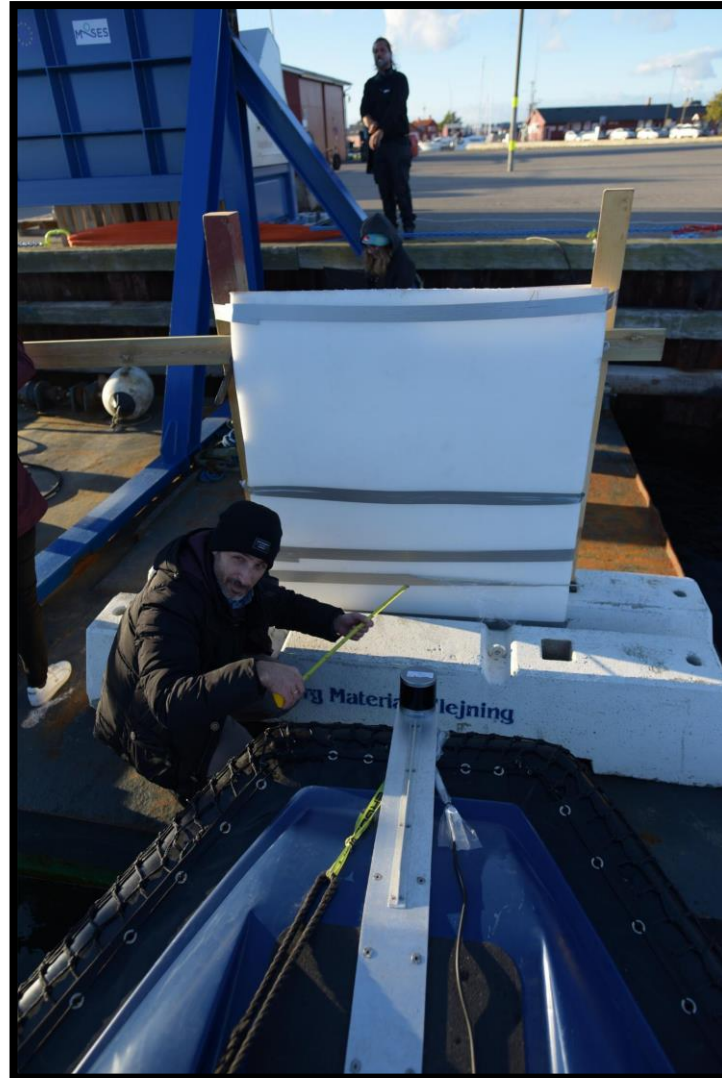


- Barge with mounted steel structure – “Wall Side”



Testing Platform

- Lidar mounted on front of workboat



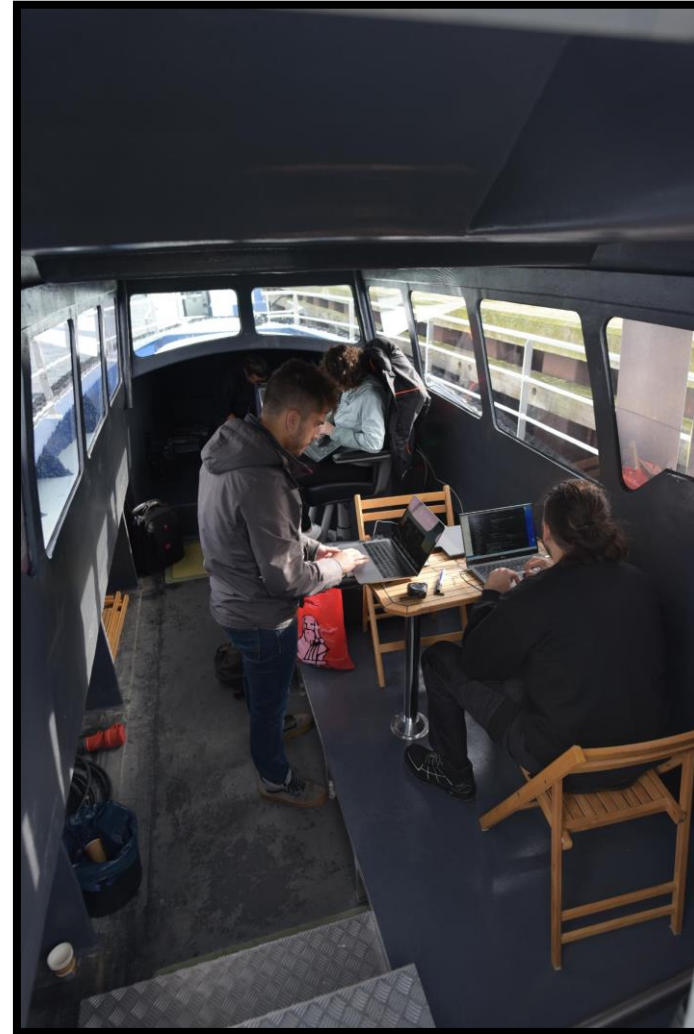
- Test of lidars position and function.
- Reflector plate built on barge

Testing Platform

- Swath Sonar - IMU
- GPS, Router, camera etc.



- Communication and control of throttle, steering, sensors, autommoor unit, GPS, Lidar

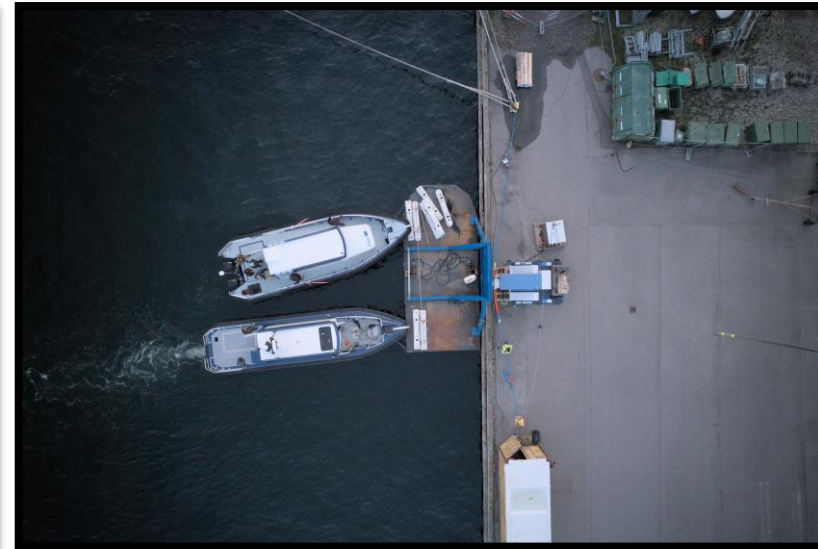
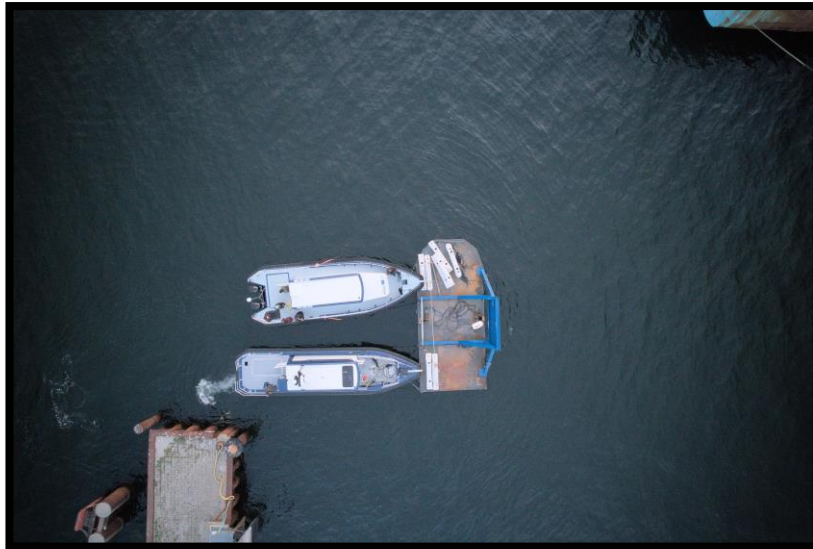
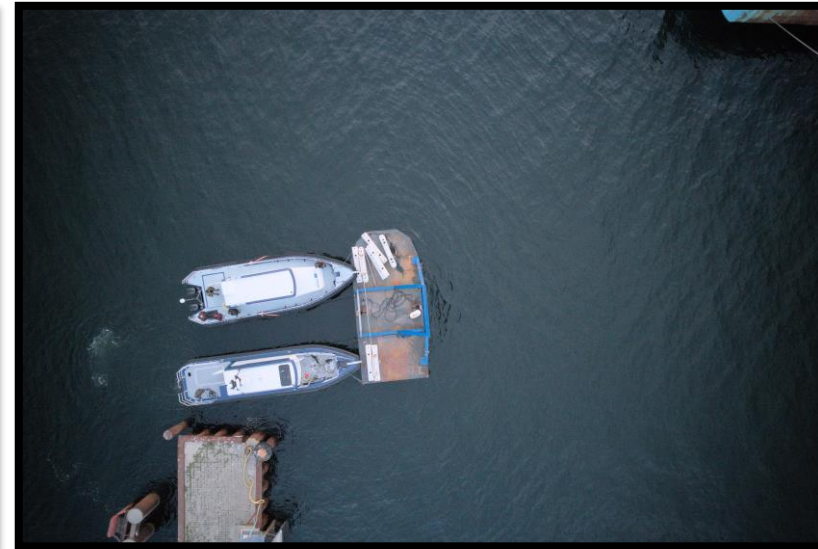
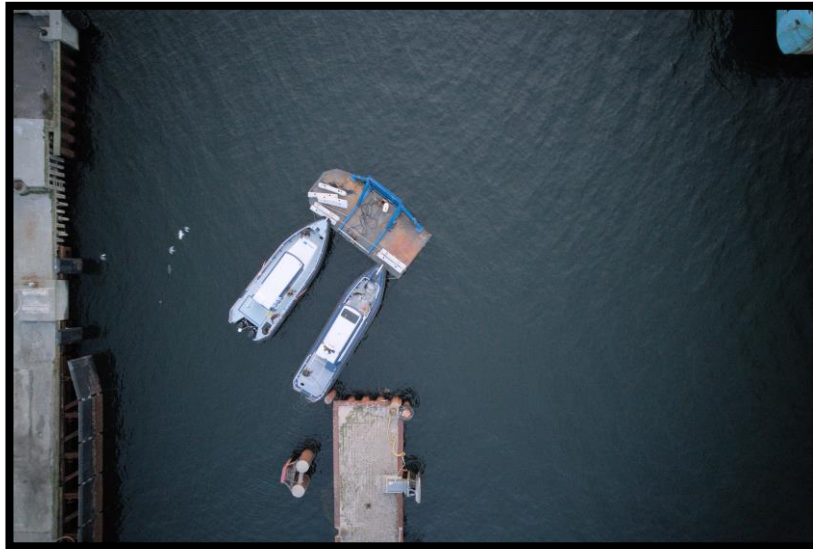


Testing Platform

- Final setup for testing platform – in operation.



Testing Platform in motion



Barge in position

- We succeed repeatedly to perform an autonomous operation, where the two workboats pushed the barge to the pier and the automoor unit went out and got hold of the barge.



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Thank you for your attention!


TUCO
YACHT VÆRFT

Søren Pedersen

sfp@tuco.dk



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 MOSES project2020

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 MOSES Project



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