



## **VOLVO PENTA**

# **Development of a Scale Model Autonomous Cargo Vessel based on an Open Source Software Framework**

### **Thesis Background**

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Automation can replace hard, monotonous work in a challenging or hazardous environment while increasing productivity or quality. Unmanned vessels use sensors & AI to observe the environment without any crew; potentially lowering costs and improving safety. In this thesis a scale model of an autonomous cargo vessel will be developed. The basis of the automation package will be an open source software. OpenDLV is an open software framework intended to run in autonomous self-driving vehicles and it is vehicle type independent.

### **Thesis scope of work**

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- Build a scale model platform based on a base platform that was previously developed for a different application. 3D printers are available for this project.
- Modify the open source automation platform (OpenDLV) for the specified application, in collaboration with Chalmers Revere Lab
- Test and verify it in a physical field
- Demo of the system

### **Qualifications & Required Documents**

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- Two students with a background in mechatronics, signal and systems, automotive engineering or similar
- Knowledge of automation, optimization and verification
- Programming, Matlab, Simulink

Please send your application including CV, Cover Letter, and Transcript of grades.

## Practical information

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**Thesis Level:** Master (30 ECTS points)

**Language:** English

**Starting date:** January 2019

**Number of students:** 2 students

**Last application date:** December 1<sup>st</sup>, 2018

**Examiner proposal:**

## Contact

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## About us

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The Volvo Group is one of the world's leading manufacturers of trucks, buses, construction equipment and marine and industrial engines under the leading brands Volvo, Renault Trucks, Mack, UD Trucks, Eicher, SDLG, Terex Trucks, Prevost, Nova Bus, UD Bus, Sunwin Bus and Volvo Penta.

With Volvo Penta, a world-leading supplier of engines and complete drive systems for marine and industrial applications, you will be part of a global and diverse team of highly skilled professionals who works with passion, trust each other and embraces change to stay ahead. We make our customers win.



In new Technology Development, our mission is to develop and deliver new innovative solutions and driving Volvo Penta transformation towards future technology. We are a light setup with few own resources, but with a budget and mandate over a large number of appointed resources. We are an agile and scalable entity that adapt over time to reflect the changing needs. We deliver Technology strategy, Innovation and Mature technology ready for product projects.

**Entity:** AB Volvo Penta

**State / Province:** Västra Götaland

**City/Town:** Göteborg

**Employment/Assignment Type:** Thesis

**Functional Area:** Technology