We work with control systems and analysis, model based development and software development. Our assignments contain challenges at the highest technical level and in our engineers you'll find analytical minds, inventive souls and a can-do attitude.

What drives us is a passion for technology and a genuine commitment to people. This is manifested in our open-minded atmosphere, informal culture, and that we prioritize skills above background.

Master Thesis

Model-based design development and control of an underwater vehicle, ROV

Background

Combine is an engineering company in the field of control systems, analysis, model-based development, software and product development. We have experience working with methods for model-based development, to ensure higher quality and a more efficient development process.

A growing interest at Combine lately is the development of a ROV (Remotely Operated underwater Vehicle). As a master thesis student at Combine; your assignment will consist of building the ROV from supplied hardware and create/improve its control system. The work shall be conducted in the same way as Combine employees are solving problems in the industry, i.e. model-based development. An important part of this master thesis is therefore to construct a plant model of the ROV. The result of this master thesis will be to show both students and companies how model-based development can be used, and it will also work as an input for future projects at Combine regarding control of nautical vehicles. The focus should be to develop the best possible model of the ROV, and to design a control system which increases its performance. The result of this shall be implemented to the existing ROV and tested.

Main Tasks

(1) Assemble the ROV.
(2) Create a plant model of the ROV in Matlab/Simulink.
(3) Design a robust control system for the ROV in Matlab/Simulink.
(4) Download the control system to the hardware, and show improvements.
(5) Documenting the work and presenting it at Combine.

Qualifications

- Experience with Matlab/Simulink.
- Experience with control systems and model-based development.
- A keen interest in technology!

Contact

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The Master Thesis can be performed by two students at Combines office in Linköping. Questions and applications are referred to Rikard Bengtsson. Applications should include resume, cover letter and transcript of records.
For information about the ROV, visit http://www.openrov.com/products/2-8.html.