



ROSEN is a leading privately owned company that was established as a one-man business in 1981. Over the last 30 years, ROSEN has grown rapidly and is today a worldwide technology group that operates in more than 120 countries with over 2,200 employees. ROSEN is an extended team of people with a passion for technology and innovation. Our claim "empowered by technology" is the key to our sophisticated and highly innovative products and services to the oil and gas and other engineering industries. The focus of all our research efforts and high tech solutions is on a safe operation of assets and therefore provide protection for both people and the environment.

For our Science Disciplines Department we are looking for an intern/trainee for a

## MASTER'S THESIS: STRUCTURE OPTIMIZATION BASED ON FEM CALCULATIONS AND REGRESSION TECHNIQUES

The finite element method is established as a very efficient tool for search of an optimal construction design. However, the FEM calculation requires often significant calculation time. The long calculation time makes very difficult the structure optimization for many practical applications. Optimization problem usually includes FEM analysis of very similar models. In this case, the results of numerous FEM calculations can be described by a regression model. The obtained regression model can very quickly both reproduce the results of performed FEM calculations and predict results for new design configurations. Thus, the combined application of FEM and regression technique can significantly accelerate the development of the new design.

### RESPONSIBILITIES

- development and assessment of a methodology for optimization of an often used construction design
- electromagnetic FEM simulations using a ROSEN simulation environment
- generation of the regression model for simulation results based on open source packages
- evaluation of advantages for the optimization of the construction based on the developed regression model

### REQUIREMENTS

- knowledge in the field of numerics especially in the application of the finite element method
- programming skills desirable
- experiences with regression models beneficial but not necessary
- high level of motivation and ability to work in a team

### WE OFFER

Be part of a motivated, highly qualified team and boost our innovation strength by your know-how!  
We are looking forward to receiving your application.

If you are interested please apply via our online portal [www.rosen-group.com](http://www.rosen-group.com)  
or send your application documents to [hr-lin@rosen-group.com](mailto:hr-lin@rosen-group.com).