



# SPC

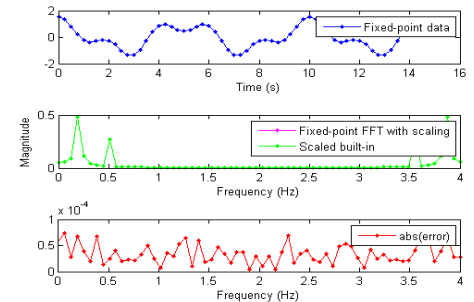
## Technology AB

### **Paid Master Thesis – Vibration Analysis for Optimization of Land Based Oil and Gas Drilling Operations.**

#### **Thesis Background**

SPC Technology AB, based in Stockholm, is a hi-tech development company within the Guideline group. Our mission is to provide technology for land based drilling operations to improve quality and efficiency. We have a long term partnership with Atlas Copco Secoroc, which is the global leader in drilling equipment. SPC Technology is in a growth phase and a successful thesis could lead to employment with great benefits.

Our latest product, EDGE, was recently launched in the US market and has attracted significant attention. The EDGE is based on SPC patented technology for actively using vibrations generated from the drilling tool, sometimes several kilometers below the surface, as steering parameters. The EDGE combines hardware such as dedicated accelerometers and our proprietary software. For more information about EDGE please visit <http://www.atlascopco.com/secoroc/>



#### **Thesis Goal**

The purpose of this master thesis is to understand and describe the underlying physics behind vibrations generated by a percussive drilling tool during drilling operations. Our product EDGE actively monitors and presents vibration data to help the driller to improve performance. We envisage the thesis to focus on analyzing vibration data both in the time and frequency domains and in particular find correlations between data and events during drilling. The expected results will be used to make improvement of the current used algorithms as well as better understanding of the physics involved. However, there will naturally be room for creative students to formulate further scope. This master thesis will form an active part of a wider research project for improving the efficiency of land based drilling operations. Work on it will be conducted in collaboration with “The Marcus Wallenberg Laboratory for Sound and Vibration Research” at KTH with Professor Leif Kari, [leifkari@kth.se](mailto:leifkari@kth.se), as contact person. Laboratory testing will also be done in cooperation with Atlas Copco in their Lab facilities. The outcome of the thesis will be of outmost importance to our business.

#### **Requested Competences**

- M.Sc. in Physics/Electrical Engineering/Computer Science with deep knowledge/interest in signal processing, vibrations and programming/data analysis or equivalent
- Communication and presentation skills in English are essential
- Independent, outgoing, ambitious, and goal oriented personality
- Excellent grades in relevant areas

**Financial compensation for thesis is to be paid in the form of a bonus (20 000 – 30 000 kr), subject to thesis approval by KTH examiner.**

**Please send your application together with relevant grades to:**

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