



## Internship (or Master's Thesis) Compressor physical modelling for turbocharged engine simulation

ABB Turbocharging has an in-house simulation tool for simulation of turbocharged large bore engines used by more than 30 users. The task for this position is to improve the generation of performance maps from measurements and the quality of simulations, using a physical compressor model derived from first principles.

### Task description

As an intern, you will:

- Develop and improve 0D/1D mathematical models for a physical description of the compressor's performance.
- Validate the accuracy of the models compared to measurements, and their qualitative extrapolation capabilities.
- Develop new scaling/interpolation/fitting methods for the generation of high quality compressor performance models, with a focus on reducing the amount of measurements required.

### Requirements

- Graduate student (bachelor completed) in Mechanical Engineering or a similar discipline, ideally with focus on the field of thermodynamics, turbo machinery or system modelling.
- High motivation, an independent work style as well as an analytical approach to problem solving.
- Fluent in English or German.
- Experience in using a programming language (Matlab, Python, C#, C++, Fortran, etc.) for developing and using mathematical models.

### Terms

Location: Baden, Switzerland  
Start: by agreement, ideally in Spring 2016  
Length: about 3 to 6 months  
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### Contact details

If you are interested in this position, we welcome your application by e-mail. Do not hesitate to contact us if you have questions regarding the position.

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ABB Turbocharging ([www.abb.com/turbocharging](http://www.abb.com/turbocharging)) is at the helm of the global industry in the manufacture and maintenance of turbochargers for 500 kW to 80+ MW diesel and gas engines. Our leading-edge technology and innovation enables our customers to perform better and produce fewer emissions, even in the toughest terrains. Approximately 200,000 ABB turbochargers are in operation across the globe on ships, power stations, gen-sets, diesel locomotives and large, off-highway vehicles. We have over 100 Service Stations in more than 50 countries worldwide. In Switzerland ABB Turbo Systems Ltd is located in Baden and Klingnau and employs about 800 people.

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