

**Master Thesis with Industry Connection
(for one or two students)**

Tool Integration with SOA (Service-Oriented Architecture), MDD (Model Driven Development), Java development, focused on V&V integration between design and testing tools.



Background - Tool Integration:

Today, developers of complex software systems, such as embedded systems in power plants, airplanes or cars are using a number of development tools, which today do not work together effectively. Ideally, all the required tools are integrated in a tool chain. A key factor is also the possibility to provide comprehensive verification support, by means of automated procedures within these tool chains.

Context - ABB and KTH:

In the iFEST project (<http://artemis-ifest.eu>) the partners will provide a tool chain consisting of several tools. ABB (<http://www.abb.se>) and KTH cooperate in building parts of this tool chain, called tool adapters.

In this thesis, the work will consist in implementing tailored tool adapters and a link between testing focused tools and design tools. Subjects for the activities are tools used by ABB, notably the Matlab/Simulink framework, the life cycle management tool HP ALM and the test case and test script generation tool MaTeLo.

Technology - MDD and SOA:

The tool adapters will be realized as a web-service using the service-oriented architecture (SOA) and model driven development (MDD).

In the following some concrete milestones for the master thesis:

1. Elicit the requirements for the tool adapters based on the current and future/desired working practice of our industrial partner ABB. This would require that the master student(s) will conduct either a dedicated internal survey at ABB or will base it on existing survey results.
2. Model the tool adapters using MDD technology.
3. Implement the tool adapters using SOA technology.
4. Test the tool adapters together with ABB based on a simple case study.

You bring:

- Working on a degree in Software Engineering or similar
- Availability February/March 2012 - August/September 2012
- Excellent written and oral English communication skills

- Experience with Java and Eclipse of at least 2 years
- Experience with the development of web services and service oriented architecture (SOA)
- Experience with model-driven development (MDD)
- Experience with Eclipse EMF and Model Transformations is a plus
- Additional knowledge on Matlab/Simulink is a plus

We offer:

- Strong connection to Industry: ABB, Väsetrås
- Payment for the master thesis is available
- At least one meeting per week with your academic advisor
- Opportunity to work with the latest technologies for modern software engineering

How to proceed:

Please send your application to Frédéric Loiret (loiret@kth.se) and include:

- Short motivation letter (highlight experiences relevant for this thesis)
- CV
- Recent transcripts from your university