

TITLE: System Model transformations**Duration and period**

6 Months

Two words about Samares Engineering

Samares-Engineering is recognized expert in field of systems engineering and more specially in Model-Based Systems Engineering (MBSE). Samares-Engineering provides consultancy for design offices of large companies in different domains: Airbus, Zodiac Aerospace, Comac (China), Schneider Electric, Continental Automotive, Rockwell Collins...

Samares Engineering also does research and provides training courses. It has strong relationships with high schools and research institutes in Toulouse: ISAE Supaero, Enseeiht, Cnam, IRT St Exupery...

Internship context

Samares-Engineering is currently developing a MBSE methodology that enables system engineers to simulate a model of their System-of-Interest at each step of the development process, from context to architecture, design up to production.

This methodology provides different viewpoints and requires some model transformation to ease transition from one step to another step: from operational scenarios to function definition, from function behaviour to system dynamics, from functions to requirements...

In order to ease work done by Systems engineer, Samares would like to automate some of those transformations.

Goal and tasks

Goal: main goal is to automate different model transformations done manually for now.

Tasks

1. Learning of SAMAREQ methodology and of all model transformations between the different viewpoints.
2. Analysis of model to model transformations technics and technologies: ATL, QVT, Acceleo... discussions and suggestions with regards to the different transformations.
3. Transformation from functional architecture to logical architecture. Idea is to partition functions into logical elements and then ensure consistency between functional flows and logical components communication. You will be in charge of the specification, design and realization of the transformation.
4. Transformation from functional architecture to system functional requirements with traceability. It will consist in deriving system requirements from functions and functional breakdown. You will have access to state of the art on that topic and you will meet experts from industry including Airbus.
5. Transformation from functional architecture to system dynamics: it consists in extracting events from operational scenarios and from function behaviour. This is advanced research topic. You will access to academics for that purpose.
6. Transformation from system model to specification document: it consists in starting from a word template and filling the different chapters with model elements including diagrams coming from system model.
7. Promotion of those transformations: you will build demonstration and videos showing how the different transformations work. You will be supported by whole team of Samares and by Ethics Group partners for multimedia and lab access. We will promote your work through publication and you will present it jointly with R&D engineer from Samares
8. Report – synthesis and suggestions of improvements

Note: for us, internship is considered as a first step toward job application. In case there are good relationships and good results, Samares Engineering is likely to propose a job and you will have opportunity to continue and extend your work as technical leader in support of the Samares Engineering methodology or become MBSE consultant.

Pedagogical goals

Intern will develop skills/knowledge in systems engineering and more especially in model-based system engineering with focus on modelling techniques and model transformations.

Working environment

Samares Engineering is part of Ethics Biotope, an eco-system with different companies and partners involved in building a new vision called “good company”. Collaboration is encouraged and there are many facilities to support companies in their development. It is located in Ethics village at 6 mn from Airport.

Concerning technical environment, you will access to powerful computers and to Samares Lab’ . You will also access multimedia studio to build professional videos with support of specialists (Ethics partners).

Intern expected profile

We are looking for interns with first engineering background and especially in Software Engineering to be able to develop a prototype, and curious about learning new methods and tools.

Location

BLAGNAC- 2, Avenue de l’Escadrille Normandie Niemen, Ethics Biotope.

Internship compensation

900 € / month

Application for this offer

You can apply directly from our web site: <http://www.samares-engineering.com/fr/contact-2/#a99b4ba4b2c1195c3>

You can also apply to this offer by email to: contact@samares-engineering.com