

SaberRD

Client Interview

Alain Sanchez - ***Ingeteam***



Introduction

Powersys had the chance to **interview Alain Sanchez, IMD-Industrial & Marine Drives, Product Technician at Ingeteam**. We invite you to read our interview about the benefits of using SaberRD for his development projects. It will be a point of view more specific and professional.

Ingeteam is a company specialising in power and control electronics (inverters, frequency converters, controllers and protections), generators, motors and pumps, electrical engineering and automation projects. They completes this offer with operation & maintenance services. Ingeteam develops its products in the following key sectors: wind, PV, hydro and fossil fuel power generation; metal processing industry; marine; rail traction; power grid, including substations, always seeking to optimise energy consumption and to maximise generating efficiency, also covering energy transport and distribution.

Notably, the company operates throughout the world, employing 3,800 persons. R&D is the backbone of Ingeteam's business activity, in which 5% of the company's turnover is invested annually.

Questions / Answers

Alain Sanchez, who are you?

I'm **Alain Sanchez-Ruiz**, I was born in Barakaldo, Spain, in 1985. I received the B.Sc. degree in electronics engineering, M.Sc. degree in automatics and industrial electronics, and Ph.D. degree in electrical engineering from the University of Mondragon, Mondragon, Spain, in 2006, 2009, and 2014, respectively.

After that, I joined Ingeteam R&D Europe, Zamudio, Spain, in May 2014, where I am currently an **R&D Engineer**. Since January 2017. Also, I was an Assistant Professor with the Department of Electronic Technology, University of the Basque Country, Bilbao, Spain. And my current research interests include modeling, modulation, and control of power converters, multilevel topologies, advanced modulation techniques, and high-power motor drives

Where did you first hear about SaberRD?

My university department used SaberRD to simulate any electronic circuit it needed to be designed

What initially attracted you to this software?

In my opinion, one of **the biggest strengths is the accuracy of the achieved simulation results and obtained real results**. Indeed, this helps us to enhance the design process of the product and test control algorithms, predicting future problems that may happen before building the equipment.

What were your initial intentions for using SaberRD?

The first proposed usage was the simulation of power electronic components for hardware design.

Has your use of the software evolved since then? What was the SaberRD impact on your work?

Even the first intention was the one commented above, **the use of Saber has evolved also to use it to test any new control algorithm. Nowadays, Saber is fundamental for both, hardware design stage and software algorithm validation.**

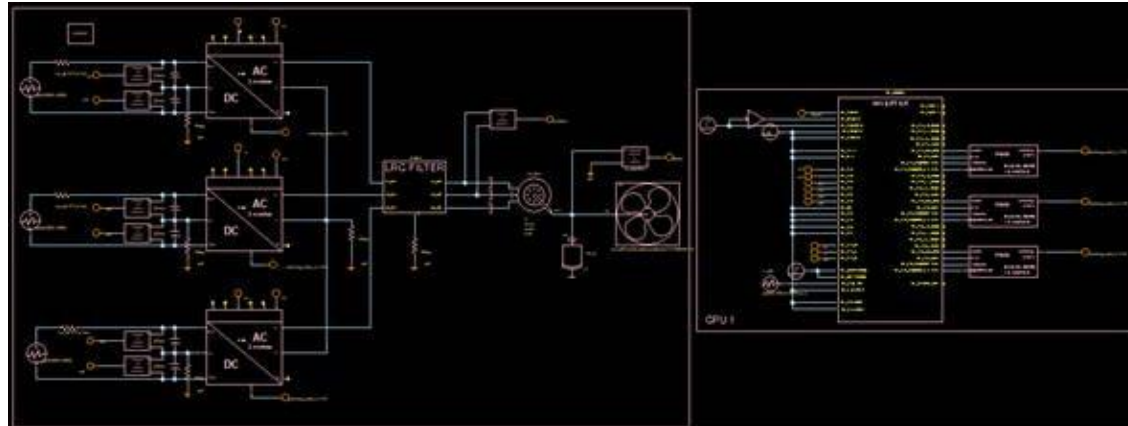
Application Study Case

Can you describe a specific study case in which SaberRD had a key contribution on study time and accuracy of results?

We use saber in order to validate our whole hardware and software algorithm system. Among these simulations one example is the system behavior of what was the new Ingetdrive MV700 connected to a motor. This converter is a Medium Voltage five level (multilevel) converter (www.ingeteam.com) which was a completely new topology for Ingeteam. In order to evaluate the whole system behavior, the figure below shows the used Saber simulation model:

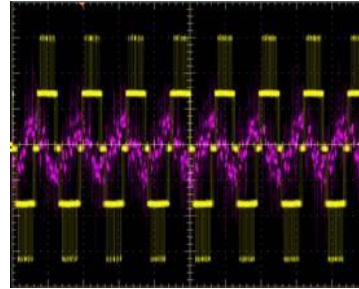
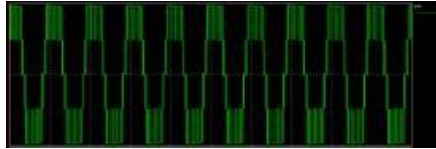
- In the left side all the hardware design can be seen. It consists of three power electronics building blocks with star connection, an output filter, motor and a fan as load.
- In the right side, the control scheme made by Ingeteam can be found. This has a DLL with the real control code which can be executed and tested in the Saber simulation

Even the design, hardware converter topology and new control algorithm proposal was difficult, this scheme helps us to see possible concept problems.



Application Study Case (suite)

The achieved results can be seen below (green à voltage simulation; yellow à test voltage)



Thanks to the performed simulations, we were able to know in advance that the proposed control strategy and hardware layout was able to cope with the application demands.

- **How did your company benefit from using SaberRD?**

Saber has a key role in our hardware and software algorithms design process. Due to this program, we can detect in advance possible problems or wrong ideas and solve them, in order to have the desired results in real applications.

- **Is there anything that SaberRD allows you to do that you could not do before?**

Yes, SaberRD is also really usefull to predict converter behavior.

We would like to thank Alain Sanchez for his time and the entire Ingeteam staff for your confidence and interest in our SaberRD. We truly value your point of view and we are glad that our software is useful and fits your needs regarding hardware design stage and software algorithm validation.

Thank you - Ingeteam

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If you need more information on Saber software, please visit our dedicated website:

<http://saber-solutions.com>

