

Theme: pSeven – a first full-cloud design space exploration platform

Sergey Morozov

Alexander Prokhorov

DATADVANCE

Abstract

Nowadays a new generation of full-cloud design and simulation software tools is emerging. Among of the pioneers are OnShape, SimScale and Sim4Design. Although these tools offer great design and simulation capabilities one component – design space exploration – is missing. But this is an essential component for implementing simulation driven design methodology.

In this paper we present a full-cloud design space exploration system pSeven Cloud. It is based on the industry proven efficient data analysis and optimization algorithms supplemented with SmartSelection metaheuristics allowing to select the most efficient algorithm for a given problem. pSeven Cloud features easy-to-use graphical user interface allowing simulation experts 1) to easily automate existing design processes by creating simulation workflows, 2) to effortlessly implement multidisciplinary design space exploration strategies, 3) to share these workflows as a ready tools, a.k.a. as vertical applications, with non-experts within the company, and 4) to execute studies using existing HPC infrastructure.

We demonstrate solution of real-life industrial problems using pSeven Cloud integrated with full-cloud CAD and CAE solutions like OnShape, SimScale and Sim4Design.