DEPS : A language for modeling and solving system synthesis problem

Pierre-Alain Yvars*[1] and Laurent Zimmer*[2]

[1]Laboratoire QUARTZ EA 7393 – ISAE-Supméca – 3 rue Fernand Hainaut – 93407 Saint Ouen Cedex, France

[2]Dassault Aviation – 78 quai Marcel Dassault – 92552 Saint-Cloud cedex, France

Résumé

We propose in this talk an approach oriented to the description of the problem to be solved through an adapted formalism called DEPS for doing architecture and system synthesis. DEPS (Design Problem Specification) addresses problems of sizing, configuration, resource allocation/deployment and more generally of architecture generation or synthesis encountered in system design. The systems considered can be physical systems, software-intensive systems or mixed systems (embedded, cyber-physical). This language combines structural modeling features specific to object-oriented languages with problem specification features from constraint programming. We also present an integrated approach through the DEPS Studio environment, allowing DEPS modeling, model compilation and solving using an integrated constraint programming solver on mixed domains.

*Intervenant