



## Séminaire du CIRRELT

# Amadou Coulibaly

National Institute of Applied Sciences of Strasbourg, France



### Semantic design and behavioral performance engineering of complex products: application to mechatronic products

**Abstract:** Mechatronic products are increasingly used in everyday applications (mobile telephones, digital cameras, computers, automobiles, NC machine tools, etc.). These products are technologically complex systems that are made of mechanical, electronic and software subsystems. Although many studies have been carried out to examine the performances of mechatronic products, in terms of reliability, maintainability, safety, availability and recyclability, such research works and industrial tests are mainly based on real testing by considering only a few categories of mechatronic products. In addition, these studies are rarely focused on how to provide efficient design approaches and tools that can help designers to develop new products and to estimate their behavioral performances.

In this presentation, we propose an approach for semantic design of mechatronic products and the way to analyze the behavior performances.

Our approach proceeds by 2-steps: first, an analysis of the reliability and of the maintainability of product components. This allows the designer to choose the components and assembly types to be used among a host of components for internal and external elements.

The second step deals with the implementation of our approach into a CAD system in order to provide the designer with real-time a practical assistance depending on the choice of components, of assembly types, and by selecting value-added services that must be included at the product design stage.

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Ouvert à tous

Organisateur  
Daoud Aït-Kadi

