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Ontology and semantic web for manufacturing

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Developing innovative and competitive products in a globalized world requires an orchestrated Product Life Cycle Management (PLM). To achieve this, we require more than enterprise policies and good human-based communication channels. In addition, appropriate technologies are mandatory. These technologies should be able to support representing, managing and reusing the PLM knowledge as well as inferring implicit knowledge in large and geographically distributed knowledge bases. Some of the aforementioned requirements, related with knowledge, are considered in ontology and the semantic web framework. That is causing an increasing interest in using them into the manufacturing domain. Design for Manufacturing (DfM), Concurrent Engineering (CE) and Flexible Manufacturing Systems (FMS) are modern manufacturing approaches in which the search of orchestration becomes evident. Ontologies and the semantic web framework have been used to model products and more recently other resources (e.g., machine-tools). In the same way the semantic web could support the work flow and decision making in the PLM, enabling automatic information retrieval and reasoning. Therefore, in this session we will introduce a state of the art and the evolution of ontology and the semantic web into the manufacturing domain. Furthermore, we will discuss about some specific use cases, and implementation challenges.

Biography

Luis Enrique Ramos Garcia has a Lecturer Position in the Department of Industrial Engineering at the National Open University of Venezuela. He is currently PhD candidate in Ontological Engineering the University of Bremen, Germany. Previously, he received his Industrial Engineer Degree from UNA, and an MSc in Information System at the University Simón Bolívar. He has published more than 20 papers in several international and local Conferences, and in some journals like Computer in Industry (Elsevier). Moreover, he has participated as organizer of the OSEMA (Ontology and Semantic Web for Manufacturing) international Workshop, and he also has participated as Reviewer of some of the most important journals in the field of Industrial Engineering. His current research interests include ontology and semantic web applied to manufacturing, knowledge representation and reasoning in CAD/CAM, and product development automation. He also holds a researcher certification (PEII-ONCTI) from the Venezuelan government, which has led him applying for and obtaining grants for developing CNC machinery prototypes.

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