Bases de Datos, Ontologías y Web Semántica: El alto valor de su convergencia

General Description.

The developments of **the fields of *Semantic Web* and *Ontologies*** have reached a level of maturity where the relationship with **the field of *Databases*** is becoming of paramount importance. It is absolutely necessary to joint their efforts in order to integrate one step further these important areas of research. The objective is to present databases and information systems research as they relate to ontologies and semantic web, and more broadly, to gain insight into the semantic web and ontologies as they relate to databases and information systems. It is meant to cover foundations, methodologies and applications of these **fields for *Databases* and *Information Systems***.

***Semantic Web**:* The Semantic Web is a key initiative being promoted by the World Wide Web Consortium (W3C) as the next generation of the current web. Technically it is grounded on the notion of machine-understandable metadata, which will permit to partly automatize the semantic processing of data on the Web. In fact, metadata on the Web is becoming pervasive. Managing and querying such voluminous amount of data is one of the main challenges of the Semantic Web, and a key step towards the realization of it. The W3C has defined standards for metadata formats and semantic descriptions on the Web. Currently query languages are being standardized. Today, more than ever, database techniques are essential to solve the challenges posed by these developments, and to help in this development is one of the main IT's goals.

***Ontologies**:* Ontologies serve as a means for establishing a conceptually concise basis for communicating knowledge in any context. Ontologies can be very useful for a community as a way of structuring and defining the meaning of the metadata terms that are currently collected and standardized. A key point in databases is the ability to make data available semantically, that is, to find an automated and meaningful way of expressing their structure and semantics. Indeed schemas as sets of rules represent complex agreements made by designers with domain experts about data and so constitute a potentially valuable basic resource for eliciting ontologies. Ontologies may be useful too for conducting extraction in Data Mining tasks for discovering patterns, interpreting rules or conceptual clustering. For instance, ontologies can be used to build an information model which allows the exploration of the information space in terms of the items which are represented, the associations between the items, the properties of the items, and the links to documentation which describes and defines them.