Strategies for Realizing the Semantic Web

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How to make the semantic web a reality

• Infrastructure
  – Language
  – Manual annotation tools (MnM)
  – Automatic extraction of semantic content
    • (MnM, Melita, Armadillo, OntoMat))
  – Tools for specification, use and debugging of Semantic Web Services
    • IRS-II

• Basic Functionalities
  – Ontology-enhanced Search
    • Semantic Google
  – Brokering and automatic composition of semantic web services

• Killer Applications
  – E-commerce, personal agents, pervasive semantic web services, groupware, tele-presence, e-science
Something else

• Build tools which help (or force) people to think semantically

• Browsing -> Semantic Browsing
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Research Interests:

Ontologies, Problem Solving Methods, Knowledge Modelling, Knowledge Management

I am interested in applying knowledge modelling techniques to the web to deliver intelligent, knowledge-based services. For instance, in the IBROW project we are developing technologies which allow non-expert users to quickly develop prototypes of intelligent applications, by selecting and configuring reusable modelling components. In the AKT project, we are developing tools, which integrate web and knowledge technologies to support effective knowledge sharing in an organization. Other projects in which I am involved, include ScholOnto (augmenting digital libraries by means of conceptual representations of the ideas embedded in an academic publication) and Alice (using knowledge modelling technology to develop personalized shopping solutions on the web).
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I am interested in applying knowledge management, intelligent, knowledge-based services, and developing technologies which allow managers to quickly develop prototypes of intelligent applications, by selecting appropriate reusable knowledge models. In the AKT project, we are developing technologies to support effective knowledge management and organization. Other projects in which I am involved, include: SCHOLAR (augmenting digital libraries by means of conceptual representations of the ideas embedded in an academic publication) and Alice (using knowledge modelling technology to develop personalized shopping solutions on the web).
Selected Publications (1993 ->)


Climate information

The climate system

Weather and climate have a profound influence on life on Earth. The weather is the fluctuating state of the atmosphere around us. The climate is the "average weather" (more rigorously, it is a statistical description of weather, including variations) of a region (or the world). It involves the other components of the climate system

Components of the climate system

The ocean: Heat, momentum, and water exchange with the atmosphere, and are responsible for the climate. The ocean acts as a heat sink to delay climate change. In addition, ocean currents transport large amounts of heat and water around the world.

The atmosphere: Its circulation, radiation, and light (solar) which pass through it, and the reactions that determine the concentrations of some of its important constituents, such as methane and ozone.
**Climate information**

**The climate system**

Weather and climate have a profound influence on our lives. The atmosphere around us. The climate is the long-term course of the weather. Includes the future expectation of long-term weather, in the order of weeks, months or years ahead.

**Components of the climate system**

The atmosphere: its circulation, the heat (terrestrial radiation) and light (solar radiation) which pass through it, and the processes which go on in it, such as the formation of clouds and the atmospheric chemical reactions that determine the concentrations of some of its important constituents, such as methane and ozone.

The ocean: There is a constant exchange of heat, momentum and water between ocean and the atmosphere. The ocean acts as a heat sink to delay climate change. In addition, ocean currents transport large amounts of heat and water around the world.
Key features of approach

- New way to browse and interpret web content
- New framework for constructing web sites
- Ubiquitous integration of semantic web services
- Can make use of both on-the-fly markup and pre-existing annotations
- Semantic functionalities packaged as a no-extra-cost, no-extra-cognitive-overhead for users