Welcome to Semantic eScience Class Fall 2011!

Scribe: Amruta Akut
Next week's Scribe: William Gill

== Attendance ==
Deborah McGuinness (dlm@cs.rpi.edu)
Weijing Chen (chenw8@rpi.edu)
Registered students:
* Sumitra Madhav (madhas@rpi.edu)
* William Gill (gillw2@rpi.edu)
* Daniel Rotondo (rotond@ rpi.edu)
* Akeem Shirley (shirla@rpi.edu)
* Apurva Tiwari (tiwara2@rpi.edu)
* Han Wang (wangh17@rpi.edu)
* Michael Barron (barrom2@ rpi.edu)
* Katie Dunn (dunnk2@ rpi.edu)
* Linyun Fu (ful2@rpi.edu)
* Amruta Akut (akuta@rpi.edu)
* Daniel Rotondo (rotond@rpi.edu)
* David Molik (molikd@rpi.edu)
* Rohan Dhrura (dhruvr@rpi.edu)
* Charisma F A Ladiwala (ladiwc@rpi.edu)

Other attendees - please type in your name and email

== Past Action Items ==
* Completion of assignment 0

== Week 2 Methodologies, Knowledge Representation ==

== Notes ==
Professor explained the following concepts
1. KR and methodologies
2. Representing knowledge with objects
Katie asked questions: Example of expert systems
Remember: the knowledge lost
Eg: Planets evolves

Representing knowledge with objects:
1. The relationship between individuals and buckets:
2. Need to add optional reading references:
3. The definition and related conceptions of buckets

Re-enter semantic web
Linking pieces of structured and un__ information into commonly-shared description logics ontologies. PPT 14

3. Semantic Web Layers
-Semantic web layer: next week Jim will show us some modeling language examples
DL = Description Logic
OWL based on DL. RDF isn’t based on DL
RIF = Rule Interchange Framework
-Elements of KR in semantic web:
-Next assignments extension of wine
4. Ontology Spectrum
- Ontology Spectrum: from AAAI 1999
- Single view of complexity for ontologies yahoo—good example
- Language: OWL or RDF or OWL 2RL?—Important
- The knowledge base: functions, Approaches, coding and testing, using tools iterating, maintaining and evolving
- Professor encourage to use office hours

5. Collecting Data
1. Part of data information is present in tools
2. Semantic Web tools are around
3. Scraping
4. SQL
5. RDFa

6. Foundational Ontologies
1. Domain independent concept and relations
2. Rigorous defined
3. Categories of ontologies

7. Discussion of the DOLCE, SNAPBFO, SUMO and SWEET 2.0
   Problem Scenario:
   - The diagram of DOLCE
   - SUMO
   - SNAPBFO
   - SWEET 2.0 Modular Design: Data-basic science-geoscience process-phenomena-applications
   SWEET 2.0 Ontologies
   Using SWEET
   Hybrid example:

8. Mid-level: Developing ontologies. Stated a use case example and VSTO ontology
   - Use Case example: Plot the neutral temperature from the Millstone-Hill Fabry Perot
   - 7 Objectives
   - Class and property example
   - VSTO ontology
   Mid-level: Developing ontologies
   1. Use cases and small teams
   2. Identify classes and properties
   3. Review, vet, publish
   4. Only code them
   5. Ontologies: small and modular

9. Higher Level use cases

10. Visual knowledge representation
    - UML
    - CMAP Ontology Editor
    - White board, text file

11. Representing processes
    The followings are used for representing processes
    1. OWL
    2. RDF
    3. SKOS
    4. Annotations (RDFa)
5. Atom and RSS
6. The IKL and CL languages

12. Querying knowledge representations
   1. SPARQL
   2. OWL-QL
   3. XQuery
   4. SeRQL
   5. RDF Query

13. Best practices for ontologies
Other options for encoding knowledge
Query Languages for ontologies

Summary
1. KR consist of compromise
2. Different options for ontology development and encoding
3. KR changes
4. Balancing
5. Use cases
Explanations about details of Assignment2 for class 4

After 10-min Break:
Introductions: Steps to Create Ontologies
Example: Virtual Solar Terristrial Observatory

== Class Discussions==
Queries about readings given for reading assignment
Discussion about the assignment0

==Action Items==
Reading
1. Semantic web for working ontologist
2. Pizza tutorial
3. Assn 1: Representing know and understanding know rep
   a. Ask 2 ques which cannot be answered with existing ontologies (do it with or without tools)
   b. Suggest extensions to the ontology

Next weeks
Class 3: Jim will be taking class and he will be doing a hands-on workshop
Class 4: Peter Fox for use cases in week after next one