

ONTOLOGY-BASED ANNOTATIONS OF MEDICAL CONTENT

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Abstract

We present a concept to annotate medical content with ontology based annotations. This approach can improve the usability of web-oriented presentations of medical content for different types of user groups. In our case we use an ontology designed for barrier-free web-presentations, which supports disabled or elderly people in navigating complex websites.

1. Introduction

Presently, people all over the world are trying to enrich electronic data by adding semantic information about the data itself and using automated techniques [1]. Having such a technique in hand would be a big milestone towards making the Semantic Web real. Unfortunately, most of the current approaches fail because of the complexity of the decision processes occurring during the annotation phase.

This paper shall further on concentrate on the automated annotation of websites [4]. Its aim is to avail the automatically generated annotations to use existing tools that change the representation of the website based on the site's Meta data.

2. Methods

The following components form the base to start from:

- Open Source CMS - Apache Lenya 1.2.x (adapted version by the University of Zürich)
- Ontology- und Annotation Service (both web services) [2]
- Mozilla sidebars implemented in XUL and Java Script [3]
- Wafa – Ontology implemented in OWL [4]

3. Results

The result will be an extended proof of concept. Its purpose is to verify that this Content Management System (CMS) offers a great possibility to automatically annotated websites. As the CMS is based on Apache Cocoon [5] it enables to navigate inside the Document Object Model (DOM) [6] of its output. This DOM will be used to create Wafa Ontology instances that map areas of the website as well as relations between these areas. Creating the annotations automatically renders time consuming, manual annotation unnecessary. The created ontology instances become stored in a

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database and allow a parameterized transformation of the websites and therefore enhance the navigation as well as the entire accessibility.

4. Discussion

Based on this tool other developers will be able to build prototypes for the general public. Future developments will have to take performance as well as the WAI guidelines more into account. Regarding performance, acting with DOM should be avoided since it's a very space consuming model. Ontology based annotations can also be used for extended purposes like user(-group) driven selection/presentation of contents or extended semantic functionalities.

5. Conclusion

The web-oriented design of medical topics for different types of user groups will change rapidly by using Web 2.0 technologies. Using ontologies for annotation can be seen as a very generic approach to individualize web-oriented content presentations.

6. References

- [1] Melita Manual by A. Dingli, 2006 <http://nlp.shef.ac.uk/melita/material/Manual.html>
- [2] COHSE (Conceptual Open Hyermedia Service), available at: <http://cohse.man.ac.uk> & Annotation Service, available at: <http://www.cs.man.ac.uk/~yesilady/dante/AnnotationService.war>
- [3] DANTE transformer sidebar, available at: <http://www.cs.man.ac.uk/~yesilady/dante/dante-transformer.html>
- [4] Web Authoring for Accessibility“ – Ontology, available at: <http://augmented.ac.uk/ontologies.wafa.owl>
- [5] Apache Cocoon available at: <http://cocoon.apache.org/>
- [6] Document Object Model by the World Wide Web Consortium (W3C) available at: <http://www.w3.org/DOM/>