

Semantic Web Applications for Learning and Teaching Support in Higher Education

Thanassis Tiropanis¹, Hugh Davis¹, Patrick Carmichael²

¹ University of Southampton, Electronics and Computer Science - LSL
{tt2, hcd}@ecs.soton.ac.uk

¹ University of Cambridge, CLARET
wpc22@cam.ac.uk

Abstract. This workshop is concerned with the applications of semantic web technologies in higher education. There has been much interest in this topic within the Technology Enhanced Learning, the Higher Education Support and the Web Science communities. This proposal is supported by members of the JISC CETIS working group on Semantic Technologies for Learning and Teaching, the JISC funded SemTech Project and the ESRC/EPSRC funded Ensemble project, all of whom have been working on the relevance and value of semantic technologies to higher education in the UK. The workshop is intended to involve a wider international audience in discussing recent developments in this area and in shaping a roadmap for future research.

Keywords: semantic technologies, higher education, case based learning

1 Workshop Description

1.1 Content and themes

Semantic Web technologies have appeared to hold the promise of providing efficient support in Higher Education institutions. Although issues such as ontology consensus, large-scale annotation of learning content and the underpinning pedagogy seemed to question semantic technology adoption in the early years, recent developments seem promising. The lightweight knowledge modelling (often called folksonomies) in Web 2.0 systems and the emerging linked open data movement appear to bring significant value in terms of interoperability, well-formedness of metadata, data integration, reasoning across resources, novel ways of collaboration and personalisation, which can provide better support for Learning and Teaching in Higher Education.

There are opportunities and challenges in this emerging era of semantic technology adoption that this workshop wishes to address. In particular, the workshop will address the following themes:

- Semantic applications for Learning Support in Higher Education

- Collaborative learning and critical thinking enabled by semantic applications
- Semantic applications using linked data in repositories inside or across institutions
- Interoperability among Universities based on Semantic Web standards
- Ontologies and reasoning to support pedagogical models
- Transition from soft semantics and lightweight knowledge modelling to machine processable, hard semantics
- University workflows using Semantic Web applications and standards

The best papers will be invited to resubmit a journal paper version for a special issue of IEEE Transactions on Learning Technologies, which is scheduled for publication in early 2010.

1.2 Format

The workshop will run from 9am to 5.30pm. Paper presentations will be given a 25-minute slot of which no more than 15 minutes will be used for presentation; the rest of the time will be available for questions and discussion. Papers should be up to 12 pages long in LNCS format. This workshop will also welcome the submission of demonstration proposals of 2-3 pages in LNCS format.

- The morning session will open with a presentation of the UK JISC-funded Semantic Technologies for Learning and Teaching (SemTech) project www.semtech.ecs.soton.ac.uk
- The morning session will involve the presentation of accepted papers (we are expecting to have 6 paper presentations).
- An extended lunch session will include a walk around successful demonstrations.
- The after-lunch session will involve paper presentations until the afternoon tea break (we are expecting to have 3-4 paper presentations).
- The workshop will conclude with a panel session to discuss a roadmap of future research on semantic technologies for learning and teaching support in Higher Education internationally.

1.3 Solicitation plans

On successful acceptance of the workshop we will circulate a CFP for the workshop, calling for papers and demonstrations before the end of February. The CFP will be circulated to the EC-TEL community, to the Web Science Community and to the Technology Enhanced Learning community both within the UK and internationally. Workshop paper submissions and demo submissions will be required by June 1, 2009. A number of submissions can be expected from within the SemTech and Ensemble projects and their communities.

Papers will be double reviewed by 30th of June, and a final programme will be prepared by early July. We expect to accept around 10 full papers and as many demonstrations as possible, subject to keeping to the size of the workshop small enough to facilitate discussion.

A workshop website will be organised, and maintained into the future by the University of Southampton, and will provide details of the programme and access to the on-line papers.

This workshop is organised by members of the JISC-funded project SemTech and the ESRC/EPSRC funded project ENSEMBLE. Best papers will be invited to submit journal paper version for a special issue in IEEE Transactions on Learning Technologies.

2 Projects supporting the workshop

This workshop is organised by members of the JISC-funded project SemTech and the ESRC/EPSRC funded project ENSEMBLE.

2.1 UK JISC funded project: SemTech - www.semtech.ecs.soton.ac.uk

SemTech investigated the benefits of semantic technologies and provided a roadmap for their adoption in the context of HE/FE education in the UK. The project was funded by JISC and the project report will be available on the JISC web site. A presentation of the SemTech survey on relevant semantic applications was delivered at the 1st Web Science Conference in March 2009 (<http://journal.webscience.org/166>).

2.2 UK ESRC/EPSRC funded project: Ensemble - www.ensemble.ac.uk

“Ensemble: Semantic Technologies for the Enhancement of Case Based Learning” project is one of eight projects currently funded under the joint ESRC and EPSRC Technology Enhanced Learning Programme, part of the broader Teaching and Learning Research Programme (TLRP). The project will explore the potential of emerging 'Semantic Technologies' to support teaching in complex, controversial and rapidly-evolving fields where case based learning is the pedagogical approach of choice.

3 Workshop Organisation

3.1 Chairs

Dr Thanassis Tiropanis (tt2@ecs.soton.ac.uk) is a lecturer with the Learning Societies Lab of the School of Electronics and Computer Science. Prior to that he was Assistant Professor at the Athens Information Technology (AIT) centre where he led the e-Learning research activity and a Research Fellow at University College London. He has been involved in a number of European and nationally funded research

projects in the areas of e-Learning, Grid technologies and Semantic Web technologies and has participated as researcher or served as technical coordinator in collaborative research since 1994. He is project manager of the JISC funded project SemTech which investigates semantic technology adoption for learning and teaching.

Dr Hugh Davis (hcd@ecs.soton.ac.uk) is the University of Southampton Director of Education responsible for e-learning and head of the Learning Societies Lab. He has significant experience of being involved in UK and EU research projects, and has been a well-known figure in the Hypertext research community for nearly twenty years. He leads the Learning Societies Lab within the School of Electronics and Computer Science, and he is a member of the JISC Learning and Teaching Committee for the UK.

Dr Patrick Carmichael (wpc22@cam.ac.uk) - Centre for Applied Research in Educational Technologies, University of Cambridge. Dr Patrick Carmichael is Research and Evaluation Group at CARET, University of Cambridge, where he directs externally funded research projects on digital repositories; learning technologies; and technology-enhanced research in social sciences. Prior to working at CARET he worked in the Faculty of Education at Cambridge; before moving into higher education he was a school teacher mainly in Inner London.

3.2 Programme committee

Dr Colin Allison, University of St. Andrews
Prof Stefano Cerri, Université Montpellier 2
Dr Patrick Carmichael, University of Cambridge
Dr Dena Haritos Tsamitis INI-CyLab, Carnegie Mellon
Dr Hugh Davis, University of Southampton
Prof. Darina Dicheva, Winston-Salem State University
Dr Kathy Kikis-Papadakis, IACM, FORTH
Dr Milos Kravcik, Open Universiteit Nederland
Dr George Magoulas, Birkbeck College, London Knowledge Lab
Dr Dave Millard, University of Southampton
Uma Patel, City University
Prof Alexandra Poulouvasilis, Birkbeck College, London Knowledge Lab
Lutz Schubert, High Performance Computing Centre Stuttgart (HLRS)
Prof Marcus Specht, Centre for Learning Sciences and Technology OUNL
Dr Thanassis Tiropanis, University of Southampton
Dr Sofia Tsekeridou, Athens Information Technology
Prof Vincent Wade, Trinity College Dublin
Dr Su White, University of Southampton
Dr Mark Weal, University of Southampton
Dr Stefan Wesner, High Performance Computing Centre Stuttgart (HLRS)
Dr Yeliz Yesilada, University of Manchester