VUB SCIENCES & BIOENGINEERING SCIENCES

The Research Group

Web and Information Systems Engineering (WISE)

has the honour to invite you to the public defence of the PhD thesis of

Ahmed A.O. TAYEH

to obtain the degree of Doctor of Sciences

Title of the PhD thesis:

A Dynamically Extensible Cross-Document Link Service

Promotor:

Prof. Dr. Beat SIGNER

The defence will take place on

Friday, October 21, 2016 at 17:00 h

in Auditorium D.2.01 at the Campus Etterbeek of the Vrije Universiteit Brussel, Pleinlaan 2 - 1050 Elsene, and will be followed by a reception.

Members of the jury

Prof. Dr. Olga DE TROYER (VUB, chairman)
Prof. Dr. Bernard MANDERICK (VUB, secretary)
Prof. Dr. Wouter VERBEKE (VUB)
Prof. Dr. Bruno DUMAS (Uni. de Namur)
Prof. Dr. Angelo DI IORIO (Uni. of Bologna)
Prof. Dr. Beat SIGNER (VUB, promoter)

Curriculum vitae

Ahmed obtained a Bachelor degree in Computer Science at Al-Azhar University and a Master degree in Computer Science at VUB. He was ranked as the best student in his Master programme, and got a PhD schoolarship from the VUB. Ahmed worked as a teaching assistant at Al-Azhar University as well as at the VUB. He supervised a number of Bachelor and Master's thesis students and delivered the exercises for multiple Master's courses. Ahmed published peer-reviewed papers at top international conferences and received an Erasmus Mundus scholarship award as well as an UNRWA award through their "Best Students" programme.

Abstract of the PhD research

Digital documents often do not exist in isolation but are implicitly or explicitly linked to parts of other documents. The hyperlink concept, which was instrumental in the success of the World Wide Web, is considered the basis for creating and managing relations between documents. Using hyperlinks, most recent digital document formats as well as existing link systems enable users to associate information within as well as across different documents. However, due to a lack of empirical studies investigating end-user needs and behaviour in associating information within and across documents, the development of most existing document linking approaches is not driven by end-user requirements. Furthermore, most existing document formats only support links to web resources but not to parts of arbitrary third-party documents. Moreover, the majority of current link systems provide links to a predefined set of document.

In this dissertation we address the lack of user-driven and extensible cross-document linking solutions. Our approach consists of two major efforts including a user study and an architecture as well as an extensible link service prototype. The user study relies on a multi-case design approach consisting of an online survey and interviews with participants of the online survey in order to investigate users' current behaviour in associating information as well as their appreciation and criticism of existing solutions. The insights from our user study enabled us to formulate tentative design implications for a suitable cross-document link solution.

The presented link service meets end-user requirements and enables the linking of arbitrary documents at different levels of granularity. Existing as well as emerging document formats can be integrated and visualised with our link service's link browser. Furthermore, the presented link service supports the linking to documents that are visualised in third-party document viewers such as Microsoft Word or Adobe Acrobat Reader. The dynamic extensibility of our link service allows third-party developers and end users to support arbitrary document formats without the intervention of the link service provider. The presented link service currently supports the linking of six different document formats and three of these are integrated with their third-party document viewers.