Historic Map Annotation Use Case

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Abstract

With our YUMA annotation tool we allow scholars to annotated digitized historic maps. Besides common annotation functionality it supports novel annotation features, such as semantic linking and georeferencing. In this document, we briefly outline these features, the collections and users we are targeting, as well as the project background and organizational issues.

1 Annotating Historic Maps with YUMA

Historic maps are a valuable scholarly resource. They record historical geographical information often retained by no other written source [8], and are thus relevant to the study of a range of environmental, ecological or socio-economic phenomena: from the development of land use [6], [7] to the effects of river channel changes [2] or floods [9], to the reconstruction of past urban environments [5]. At the same time, they capture more than mere geographic facts: they also draw a fascinating picture of the cultural, political and religious context in which they were created. Their degree of accuracy tells much about the state of technology and scientific understanding at the time of their creation [8]. Consequently, historic maps are cultural heritage artifacts in their own right, part of the artistic heritage as much as of the history of science and technology as a whole [1].

With our YUMA Map Annotation Tool (http://dme.ait.ac.at/annotation) we provide, besides common annotation functionalities, two features that are not satisfied by any other existing tools and services:

- Semantic augmentation of textual map annotations with relevant information from the Linked Data Web. If, for instance, a scholar annotates a certain region on a map (e.g., Yosemite valley), the system analyzes the annotation text and searches for possibly related resources (e.g., Yosemite lakes) in the Linked Data Web (e.g., DBpedia, Geonames) and prompts the user to verify this information (see Figure 1 and [4]).
- Georeferencing of maps. (TODO [RS]: Rainer please explain; provide reference)

The produced annotation data are exposed as Linked Data on the Web following the LEMO model, which is an extension of the W3C Annotea vocabulary (see [3]). However, the complete system is currently being re-designed and open-sourced (https://github.com/yuma-annotation/) and new annotation models — in particular the OAC model — are investigated. The major technical challenges to be solved w.r.t OAC are: how to represent linked resources and geo-referencing information as part of map annotations.

2 Target Collections and Audience

The YUMA system itself is technically open for any type of map material. High resolution map scans can be uploaded and are automatically tiled in order to provide seamless zooming functionality in the Web browser. At the moment we are conducting a larger experiment with the Library of Congress Map Collections (http://memory.loc.gov/ammem/gmdhtml/gmdhome.html) in order to evaluate the above mentioned YUMA



Figure 1: YUMA Map Annotation Tool Screenshot.

functionalities. We tiled approx. 6000 digitized high-resolution map scans and are asking users to provide their annotations.

We are targeting scholars from the digital library (IFLA DIGLIB and INETBIB Mailing lists) and map history domain (MapHist list) but also non-expert users from the Web. In a side-experiment, where we aim at creating a gold standard for historic maps http://compass.cs.univie.ac.at, we recruited 70+ users within four weeks.

In addition to the above mentioned semantic augmentation and geo-referencing functionalities, YUMA provides the following basic annotation types:

- free-text annotations on maps or map regions
- replies (optionally with different regions) to existing annotations
- annotation rating
- flagging an annotation as inappropriate

3 Project Background and Organizational Issues

The whole YUMA annotation tool suite is an open-sourced and re-factored derivative of the LEMO annotation tools developed for the European Digital Library (Europeana, http://www.europeana.eu). We will further develop the semantic augmentation and geo-referencing aspects of YUMA in the following projects:

- SciLink: an EU-funded research project carried out by Bernhard Hashofer at Cornell University. The focus is on semi-automatic linking and link-maintenance aspects and novel interaction paradigms (e.g., annotations) to support end-users in semantically augmenting Web documents.
- (TODO [RS]: one sentence about the JISC project; say that it is about geo-referencing)

Bernhard Haslhofer, prospective (March 1st, 2011) Postdoctoral Associate at the Cornell University Information Science Department would attend the OAC workshop.

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