

# CURRICULUM VITAE

**Bernhard Haslhofer**

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## Education

- 03/2004 - 11/2008 **Doctoral studies in Computer Science**, University of Vienna, Austria, passed with distinction — Investigated techniques for achieving metadata interoperability, designed and developed a novel Web-based mapping mechanism for bridging structural and semantic heterogeneities in the Web of Data.
- 11/2003 - 12/2005 **Master in Information & Knowledge Management**, Vienna University of Technology, Austria, passed with distinction — Focus on Database and Knowledge Representation Technologies, Process Modeling, Project- and Business Management.
- 10/1998 - 11/2003 **Diploma in Economics and Computer Science**, Vienna University of Technology, Austria — Specialization on Financial Engineering and Information System Security.
- 08/2001 - 06/2002 Erasmus Student Exchange Program, Stockholm University, Sweden — Courses in Economics and Computer Science.
- 06/1997 Graduation at grammar school — Focus on the humanities and foreign languages.

## Professional activities

- Since 11/2013 **Data Scientist**, AIT Austrian Institute of Technology GmbH — research in the area of large-scale graph analytics.
- 03/2013 - 02/2014 **Postdoctoral Associate / Marie-Curie Return Phase**, Multimedia Information Systems Group, University of Vienna, Austria — research in the area of open data, concentrating on (i) open data systems and infrastructures, (ii) quality issues in open data networks, and (iii) human factors in open data systems.
- 08/2012 - 12/2012 **Lecturer**, Department of Information Science, Cornell University, USA — taught *INFO/CS 4302 - Web Information Systems*, an interdisciplinary course that introduces students to technologies for building data-centric information systems on the World Wide Web, shows the practical applications of such systems, and discusses their design and their social and policy context by examining cross-cutting issues such as citizen science, data journalism and open government.
- 03/2011 - 02/2013 **Postdoctoral Associate / Marie-Curie Fellow**, Information Science Department, Cornell University, USA — co-designed and developed the ResourceSync framework that allows systems to remain synchronized with evolving Web-resources. Studied the effects of semantic tagging in the context of open annotations using methods drawn from the field of human-computer interaction. Investigated how artifacts of scholarly communication (e.g., publications, annotations) can be embedded in Open Data networks.
- 12/2008 - 02/2011 **Assistant Professor (non-tenure track)**, Department of Distributed and Multimedia Systems, University of Vienna, Austria — research on facilitating access to multimedia objects in large-scale distributed environments such as the Web. Focus on high-level semantic metadata, contributed by users and communities while interacting with media-objects (e.g., annotations). Active participation in the W3C Linking Open Data Community project. Coordination of work in EuropeanaConnect and MEKETRE projects.

- 03/2007 - 12/2008     **Research Assistant**, Department of Distributed and Multimedia Systems, University of Vienna, Austria — research in the area of metadata interoperability, i.e., on metadata mapping and providing uniform access to a set of distributed, heterogeneous, and autonomous multimedia data sources.
- 02/2004 – 02/2007     **Junior Researcher**, Austrian Research Centers (ARC), Austria — task leader in the EU FP6 integrated project BRICKS, which had the goal to interconnect digital libraries, archives, and cultural institutions in order to provide uniform access to Europe’s cultural heritage institutions. Took the role of a core-developer and the responsibility for metadata-related system design issues.
- 10/2002 - 01/2004     **Tutor / Student Assistant**, Institute of Economics and Computer Science, University of Vienna, Austria
- 07/2002 - 01/2003     **Internship / Software Development**, Raiffeisen Capital Management, Vienna, Austria
- 03/2001 - 06/2001     **Tutor / Student Assistant**, Institute of Software Technology, Vienna University of Technology, Austria

## Publications

### Academic Theses

- Bernhard Haslhofer. *A Web-based Mapping Technique for Establishing Metadata Interoperability*. PhD thesis, November 2008. URL <http://eprints.cs.univie.ac.at/307/>.
- Bernhard Haslhofer. Agent-based electronic markets — a look behind the scenes. Master’s thesis, University of Vienna, 2003.

### Refereed Journal Articles

- Antoine Isaac and Bernhard Haslhofer. Europeana linked open data — data.europeana.eu. *Semantic Web*, 4(3):291–297, June 2013. URL <http://eprints.cs.univie.ac.at/3732/>.
- Martin Klein, Robert Sanderson, Herbert Van de Sompel, Simeon Warner, Bernhard Haslhofer, Carl Lagoze, and Michael L Nelson. A technical framework for resource synchronization. *D-Lib Magazine*, 19(1), January 2013. URL <http://eprints.cs.univie.ac.at/3681/>.
- Herbert van de Sompel, Robert Sanderson, Martin Klein, Michael Nelson, Bernhard Haslhofer, Simeon Warner, and Carl Lagoze. A perspective on resource synchronization. *D-Lib Magazine*, 18(9/10), October 2012. URL <http://eprints.cs.univie.ac.at/3533/>.
- Antoine Isaac, Robina Clayphan, and Bernhard Haslhofer. Europeana: Moving to linked open data. *Information Standards Quarterly*, 24(2/3), September 2012. URL <http://eprints.cs.univie.ac.at/3489/>.
- Bernhard Haslhofer, Robert Sanderson, Rainer Simon, and Herbert van de Sompel. Open annotations on multimedia web resources. *Multimedia Tools and Applications*, May 2012. URL <http://eprints.cs.univie.ac.at/3360/>.
- Niko Popitsch and Bernhard Haslhofer. Dsnotify - a solution for event detection and link maintenance in dynamic datasets. *Web Semantics: Science, Services and Agents on the World Wide Web*, 9(3):266–283, September 2011. URL <http://eprints.cs.univie.ac.at/2863/>.
- Joachim Jung, Rainer Simon, and Bernhard Haslhofer. Yuma — crowd sourced metadata enrichment for online collections. *ERCIM News*, (86), July 2011. URL <http://eprints.cs.univie.ac.at/3102/>.

- Bernhard Schandl, Bernhard Haslhofer, Tobias Bürger, Andreas Langeegger, and Wolfgang Halb. Linked data and multimedia: The state of affairs. *Multimedia Tools and Applications*, pages 1–34, February 2011. URL <http://eprints.cs.univie.ac.at/114/>.
- Bernhard Haslhofer and Bernhard Schandl. Interweaving oai-pmh data sources with the linked data cloud. *Int. J. Metadata, Semantics and Ontologies*, 1(5):17–31, March 2010. URL <http://eprints.cs.univie.ac.at/73/>.
- Bernhard Haslhofer and Wolfgang Klas. A survey of techniques for achieving metadata interoperability. *ACM Computing Surveys (CSUR)*, 42(7):1, February 2010. URL <http://eprints.cs.univie.ac.at/79/>.
- Bernhard Schandl and Bernhard Haslhofer. Files are siles: Extending file systems with semantic annotations. *International Journal on Semantic Web and Information Systems (IJSWIS)*, 6(3):1–21, 2010. URL <http://eprints.cs.univie.ac.at/2240/>.
- Bernhard Haslhofer, Wolfgang Jochum, Ross King, Christian Sadilek, and Karin Schellner. The lemo annotation framework: weaving multimedia annotations with the web. *International Journal on Digital Libraries*, 10(1):15–32, May 2009. URL <http://eprints.cs.univie.ac.at/165/>.

### Books / Refereed Book Chapters

- Bernhard Haslhofer and Erich J. Neuhold. A retrospective on semantics and interoperability research. In *Foundations for the Web of Information and Services*, pages 3–27. Springer, Berlin Heidelberg, July 2011. URL <http://eprints.cs.univie.ac.at/2921/>.
- Bernhard Haslhofer. *Mappings in the Web of Data: A Web-based Mapping Technique for Establishing Metadata Interoperability*. Südwestdeutscher Verlag für Hochschulschriften, Saarbrücken, April 2009. URL <http://eprints.cs.univie.ac.at/174/>.
- Bernhard Haslhofer. The bricks digital library infrastructure. In Sebastian R. Kruk and Bill McDaniel, editors, *Semantic Digital Libraries*, pages 153–164. Springer, October 2008. URL <http://eprints.cs.univie.ac.at/313/>.
- Bernhard Haslhofer. Context and current metadata standards (short entry). In Borko Furth, editor, *Encyclopedia of Multimedia*, pages 123–124. Springer Science, Business Media, Inc., January 2006. URL <http://eprints.cs.univie.ac.at/608/>.

### Refereed Conference Papers

- Elaheh Momeni Roochi, Ke Tao, Bernhard Haslhofer, and Geert-Jan Houben. Identification of useful user comments in social media: A case study on flickr commons. In *ACM/IEEE Joint Conference on Digital Libraries (JCDL 2013)*, Indianapolis, USA, July 2013. ACM. URL <http://eprints.cs.univie.ac.at/3724/>.
- Bernhard Haslhofer, Werner Robitza, Carl Lagoze, and Francois Guimbretiere. Semantic tagging on historical maps. In *ACM Web Science 2013*, Paris, France, May 2013a. ACM. URL <http://eprints.cs.univie.ac.at/3684/>.
- Bernhard Haslhofer, Simeon Warner, Carl Lagoze, Martin Klein, Robert Sanderson, Michael L Nelson, and Herbert Van de Sompel. Resourcesync: Leveraging sitemaps for resource synchronization. In *WWW 2013, WWW 2013 Companion*, Rio de Janeiro, May 2013b. ACM. URL <http://eprints.cs.univie.ac.at/3683/>.
- Christian Mader and Bernhard Haslhofer. Perception and relevance of quality issues in web vocabularies. In *I-SEMANTICS 2013*, Graz, AUT, 2013. URL <http://eprints.cs.univie.ac.at/3720/>. forthcoming.

- Simeon Warner, Todd Carpenter, Bernhard Haslhofer, Martin Klein, Nettie Legace, Carl Lagoze, Peter Murray, Michael Nelson, Robert Sanderson, and Herbert van de Sompel. Resourcesync: Web-based resource synchronization. In *The 7th International Conference on Open Repositories OR2012*, Edinburgh, July 2012. URL <http://eprints.cs.univie.ac.at/3460/>.
- Christian Mader, Bernhard Haslhofer, and Antoine Isaac. Finding quality issues in skos vocabularies. In *TPDL 2012 Theory and Practice of Digital Libraries*, Germany, May 2012. URL <http://eprints.cs.univie.ac.at/3444/>.
- Bernhard Haslhofer and Antoine Isaac. data.europeana.eu - the europeana linked open data pilot. In *DCMI International Conference on Dublin Core and Metadata Applications*, The Hague, The Netherlands, July 2011. URL <http://eprints.cs.univie.ac.at/2919/>.
- Rainer Simon, Bernhard Haslhofer, Werner Robitza, and Elaheh Momeni Roochi. Semantically augmented annotations in digitized map collections. In *ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, New York, June 2011. ACM. URL <http://eprints.cs.univie.ac.at/2840/>.
- Niko Popitsch and Bernhard Haslhofer. Dsnotify: Handling broken links in the web of data. In *Nineteenth International WWW Conference (WWW2010)*. ACM, February 2010. URL <http://eprints.cs.univie.ac.at/81/>.
- Bernhard Schandl and Bernhard Haslhofer. The sile model: A semantic file system infrastructure for the desktop. In *6th European Semantic Web Conference (ESWC2009)*, Berlin, Heidelberg, June 2009. Springer. URL <http://eprints.cs.univie.ac.at/158/>.
- Robert Hecht and Bernhard Haslhofer. Joining the bricks network - a piece of cake. In *The International EVA Conference*, December 2005. URL <http://eprints.cs.univie.ac.at/742/>.
- Bernhard Haslhofer and Robert Hecht. Metadata management in a heterogeneous digital library. In *eChallenges 2005*. IOS Press, October 2005. URL <http://eprints.cs.univie.ac.at/758/>.

## Refereed Conference Posters

- Elizabeth L Murnane, Bernhard Haslhofer, and Carl Lagoze. Reslve: Leveraging user interest to improve entity disambiguation on short text. In *International World Wide Conference*, WWW 2013, Rio de Janeiro, May 2013. URL <http://eprints.cs.univie.ac.at/3687/>.
- Bernhard Haslhofer, Keith Newman, Amanda Stefanik, Werner Robitza, and Carl Lagoze. Old maps and open data networks. In *iConference 2013*, iConference 2013, February 2013. URL <http://eprints.cs.univie.ac.at/3682/>.
- Bernhard Haslhofer. The scilink project: from document-centric to resource-oriented publications. In *iConference '12*, iConference '12, pages 567–568, New York, NY, USA, February 2012. ACM. URL <http://eprints.cs.univie.ac.at/3354/>.
- Rainer Simon, Joachim Jung, and Bernhard Haslhofer. The yuma media annotation framework. In *TPDL 2011*, Research and Advanced Technology for Digital Libraries, pages 434–437, Berlin Heidelberg, September 2011. Springer. URL <http://eprints.cs.univie.ac.at/3104/>.
- Christian Mader, Bernhard Haslhofer, and Niko Popitsch. The meketrepository - middle kingdom tomb and artwork descriptions on the web. In *Theory and Practice of Digital Libraries*, Germany, March 2011. Springer. URL <http://eprints.cs.univie.ac.at/2868/>.
- Bernhard Haslhofer. The mediaspaces mapping framework - a web-based approach for establishing metadata interoperability (poster). In *6th European Semantic Web Conference (ESWC 2009)*, June 2009. URL <http://eprints.cs.univie.ac.at/159/>.

Philipp Nußbaumer and Bernhard Haslhofer. Cidoc crm in action - experiences and challenges. In László Kovács, Norbert Fuhr, and Carlo Meghini, editors, *11th European Conference on Research and Advanced Technology for Digital Libraries (ECDL07)*, Lecture Notes in Computer Science (LNCS 4675), pages 532–533. Springer Berlin, Heidelberg, September 2007. URL <http://eprints.cs.univie.ac.at/403/>.

## Refereed Workshop Papers

Elizabeth L Murnane, Bernhard Haslhofer, and Carl Lagoze. Reslve: Leveraging user interest to improve entity disambiguation on short text. In *Web of Linked Entities (WoLE)*, Web of Linked Entities (WoLE) Workshop, co-located with WWW2013, Rio de Janeiro, May 2013. URL <http://eprints.cs.univie.ac.at/3688/>.

Bernhard Haslhofer, Flávio Martins, and João Magalhães. Using skos vocabularies for improving web search. In *Web of Linked Entities (WoLE)*, Web of Linked Entities (WoLE) Workshop, co-located with WWW2013, Rio de Janeiro, May 2013. URL <http://eprints.cs.univie.ac.at/3689/>.

Bernhard Haslhofer, Rainer Simon, Robert Sanderson, and Herbert van de Sompel. The open annotation collaboration (oac) model. In *Workshop on Multimedia on the Web 2011*, Graz, Austria, September 2011. IEEE. URL <http://eprints.cs.univie.ac.at/2871/>.

Christian Mader and Bernhard Haslhofer. Quality criteria for controlled web vocabularies. In *International Conference on Theory and Practice of Digital Libraries 2011, NKOS Workshop*, Berlin, Germany, August 2011. URL <http://eprints.cs.univie.ac.at/2923/>.

Rainer Simon, Bernhard Haslhofer, and Joachim Jung. Annotations, tags & linked data. In *6th International Workshop on Digital Technologies in Cartographic Heritage*, Netherlands, April 2011. URL <http://eprints.cs.univie.ac.at/2849/>.

Bernhard Haslhofer and Rainer Simon. Historic map annotations with yuma. In *Open Annotation Collaboration, Phase II Workshop*, Chicago, USA, March 2011. URL <http://eprints.cs.univie.ac.at/2838/>.

Rainer Simon, Christian Sadilek, Joachim Korb, Matthias Baldauf, and Bernhard Haslhofer. Tag clouds and old maps: Annotations as linked spatiotemporal data in the cultural heritage domain. In *Workshop On Linked Spatiotemporal Data 2010, held in conjunction with the 6th International Conference on Geographic Information Science (GIScience 2010)*, Zurich, Switzerland, September 2010. URL <http://eprints.cs.univie.ac.at/34/>.

Bernhard Haslhofer, Elaheh Momeni Roochi, Manuel Gay, and Rainer Simon. Augmenting europeana content with linked data resources. In *Linked Data Triplication Challenge, co-located with I-Semantics 2010*, Proceedings of the 6th International Conference on Semantic Systems, pages 1–3, New York, NY, USA, September 2010. ACM. URL <http://eprints.cs.univie.ac.at/26/>.

Niko Popitsch, Bernhard Haslhofer, and Elaheh Momeni Roochi. An evaluation approach for dynamics-aware applications using linked data. In *9th International Workshop on Web Semantics (WebS), co-located with Dexa 2010*, August 2010. URL <http://eprints.cs.univie.ac.at/36/>.

Christian Sadilek, Rainer Simon, and Bernhard Haslhofer. Service orchestration for linking open data: Applying a soa principle to the web of data. In *1st International Workshop on Recent Trends in SOA Based Information Systems - RTSOABIS 2010*, June 2010. URL <http://eprints.cs.univie.ac.at/49/>.

Bernhard Haslhofer and Niko Popitsch. Dsnotify: Detecting and fixing broken links in linked data sets. In *8th International Workshop on Web Semantics (WebS 09), co-located with DEXA 2009*, Berlin, Heidelberg, August 2009. Springer. URL <http://eprints.cs.univie.ac.at/142/>.

Bernhard Haslhofer and Bernhard Schandl. The oai2lod server: Exposing oai-pmh metadata as linked data. In *International Workshop on Linked Data on the Web (LDOW2008), co-located with WWW 2008*, Beijing, April 2008. URL <http://eprints.cs.univie.ac.at/284/>.

Bernhard Haslhofer. Uniform sparql access to interlinked (digital library) sources. In *The 6th European Networked Knowledge Organization Systems (NKOS) Workshop*, September 2007. URL <http://eprints.cs.univie.ac.at/394/>.

Bernhard Haslhofer. A service oriented architecture for integrating metadata from heterogeneous digital libraries. In *The 1st International Workshop "Semantic Information Integration on Knowledge Discovery" (SIIK 2006)*, December 2006. URL <http://eprints.cs.univie.ac.at/584/>.

Sebastian Kruk, Bernhard Haslhofer, Piotr Piotrowski, Adam Westerski, and Tomasz Woroniecki. The role of ontologies in semantic digital libraries. In *The 5th European Networked Knowledge Organization Systems (NKOS) Workshop*, September 2006. URL <http://eprints.cs.univie.ac.at/531/>.

Sonja Zillner, Werner Winiwarter, and Bernhard Haslhofer. The design and implementation of a query algebra for multimedia meta objects. In *4th International Workshop on Web Semantics*, Copenhagen, May 2005. IEEE Computer Society Press. URL <http://eprints.cs.univie.ac.at/723/>.

## Technical Reports

Bernhard Haslhofer, Simeon Warner, Carl Lagoze, Martin Klein, Robert Sanderson, Herbert van de Sompel, and Michael L Nelson. Web synchronization simulations using the resourcesync framework. Technical report, University of Vienna, Vienna, June 2013. URL <http://eprints.cs.univie.ac.at/3725/>.

Bernhard Haslhofer, Elaheh Momeni Roochi, Bernhard Schandl, and Stefan Zander. Europeana rdf store report. Technical report, University of Vienna, Vienna, March 2011. URL <http://eprints.cs.univie.ac.at/2833/>.

Philipp Nussbaumer, Bernhard Haslhofer, and Wolfgang Klas. Towards model implementation guidelines for the cidoc conceptual reference model. Technical report, June 2010. URL <http://eprints.cs.univie.ac.at/58/>.

Mirjam Keßler, Maximilian Schwarzmaier, and Bernhard Haslhofer. Umfragerapport zur nutzung von meta-daten. Technical report, February 2008. URL <http://eprints.cs.univie.ac.at/296/>.

Bernhard Haslhofer. A comparative study of mapping solutions for enabling metadata interoperability. Technical report, February 2008. URL <http://eprints.cs.univie.ac.at/295/>.

Philipp Nussbaumer and Bernhard Haslhofer. Putting the cidoc crm into practice - experiences and challenges. Technical report, September 2007. URL <http://eprints.cs.univie.ac.at/404/>.

## Teaching experience

### Cornell University

2011 - 2012      **INFO/CS 4302 – Web Information Systems** ([http://courses2.cit.cornell.edu/info4302\\_2012fa/](http://courses2.cit.cornell.edu/info4302_2012fa/)) — an advanced undergraduate and masters level course that introduces technologies for building data-centric information systems on the World Wide Web, shows the practical applications of such systems, and discusses their design and their social and policy context by examining cross-cutting issues such as citizen science, data journalism and open government.

Fall 2012      **CS 5999 – Master of Engineering Projects**

### University of Vienna

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|-----------|--|
| 2009–2011 | <b>Multimedia Information Retrieval</b> — an advanced masters level course focusing on the principles of information retrieval in distributed environments such as the Web, with a special focus on multimedia information objects.  |
| 2008–2011 | <b>Media Informatics Student Projects</b> — an advanced undergraduate course where groups of students are building applications for selected topics in media informatics.  |
| 2008–2011 | <b>Information System Technologies for Multimedia Applications</b> — an advanced undergraduate course focusing on the technical properties of various media types (image, audio, video) and their technical processing (e.g., with Java Media Framework) in multimedia applications.                                       |
| 2007–2011 | <b>Multimedia Information Systems 2</b> — a masters level course in Media Informatics that examines the technologies and available applications for building multimedia information systems in distributed environments such as the Web. A strong focus is on XML and Semantic Web technologies and on metadata standards. |
| 2007–2011 | <b>Modeling Techniques and Methods</b> — an undergraduate introductory course covering basic data modeling standards such as EER, UML, etc.  |

## Grants and Projects

|                   |  |
|-------------------|--|
| Since 03/2011     | <i>SciLink</i> (EU PEOPLE International Outgoing Fellowship (IOF)) – a Marie Curie grant carried out at Cornell University and the University of Vienna. Research on (i) interactive links discovery in scholarly publication processes, (ii) strategies for maintaining link integrity, and (iii) novel Web-based resource aggregation and presentation interfaces for scholarly publication workflows.   |
| Since 12/2011     | <i>ResourceSync</i> , a joint NISO and Open Archives Initiative (OAI) project funded by the Sloan Foundation. In this project we research, develop, prototype, test, and deploy mechanisms for the large-scale synchronization of web resources. Building on the OAI-PMH strategies for synchronizing metadata, this project will enhance that specification using modern web technologies, but will allow for the synchronization of the objects themselves, not just their metadata. |
| 12/2011 - 02/2013 | <i>Maphub</i> — an experiment funded by the Andrew W. Mellon Foundation. We examined the application of Open Annotations in the context of historic map material. Our goal was to design and build a collaborative Web environment in which scholars and citizens can contribute their knowledge to digitized high-resolution online maps. We experimented with designs that integrate the annotation process with the re-use of data from public data sources, such as Wikipedia.     |
| 07/2009 - 12/2012 | <i>MEKETRE</i> (Austrian Research Fund) — co-initiated an interdisciplinary project with the Egyptology Department at the University of Vienna. It aimed at building a collaborative Web-based solution for efficiently organizing the collected and digitized content objects from the Egyptian middle kingdom period by means of open collaboratively developed vocabularies.  |



- 05/2009 - 10/2011     *EuropeanaConnect* (EU eContentplus) — supported the development of the European Library. Responsible for the coordination of the project work at the University of Vienna and Deputy Representative in the General Assembly. Active participation in WP1 *Building the Europeana Semantic Layer*, which has to goal to aggregate contents in Europeana by means of surrogates and to enrich them with links to other surrogates and/or links to external resources (e.g., DBpedia). I also contributed a multimedia annotation solution to WP5 *Enabling and Integrating Services for Europeana*.
- 01/2003 – 10/2007     *BRICKS* (EU FP 6 IP) — aimed at building the infrastructure for integrating cultural heritage institutions across Europe. Member of the core-developer team; leader of the “metadata management” task, which had the goal to provide a flexible, distributed metadata storage solution that meets the heterogeneous requirements of the institutions involved in BRICKS.
- 2003                      *CULTOS* (EU FP 6 IP) – implementation of a query algebra for multimedia objects.

## Awards

- Open Humanities Award (<http://openhumanitiesawards.org/>), 2013
- “Certificate of Appreciation”, Faculty of Computer Science, University of Vienna, 2011
- “Certificate of Appreciation”, Faculty of Computer Science, University of Vienna, 2010

## Specifications

- *ResourceSync Framework Specification* (<http://www.openarchives.org/rs>) (editor): describes a synchronization framework for the web consisting of various capabilities that allow third party systems to remain synchronized with a server’s evolving resources.
- *Open Annotation Data Model* (<http://www.openannotation.org/spec/core/>) (contributor): specifies an interoperable framework for creating associations between related resources, annotations, using a methodology that conforms to the Architecture of the World Wide Web. Open Annotations can easily be shared between platforms, with sufficient richness of expression to satisfy complex requirements while remaining simple enough to also allow for the most common use cases, such as attaching a piece of text to a single web resource.

## Invited Talks

- *Semantic Tagging for old maps...and other things on the Web*, The Web As Literature, June 2013, British Library, London.
- *Linked (Open) Data*. Guest Lecture at Technical University of Vienna, May 2013, Austria
- *Maphub and Annotorious*. iAnnotate 2013. April 2013, San Francisco, USA.
- *Maphub - Annotations and Semantic Tags on Historical Maps*. Stanford University - Open Annotation Rollout. April 2013, Palo Alto, USA.
- *Old Maps, Annotations, and Open Data Networks*. Harvard University. January 2013, Cambridge, USA.

- *Linked Data and SKOS. Workshop on Physics Classification.* December 2011, Boston, USA.
- *Linked Data in Scholarly Communication.* AAHEP5 Information Provider Summit, Cornell University. October 2011, Ithaca, USA.
- *Metadata is back!* Keynote at Semantic Web Technologies for Libraries and Readers Workshop, co-located with JCDL 2011. June 2011, Ottawa, Canada.
- *Research on Scholarly Practices and Communication at Cornell Information Science.* Microsoft Research, 2011. USA.
- *Linked Data als Perspektive für die bibliothekarische Inhaltserschließung.* Österreichisches Online-Informationstreffen und Österreichischer Dokumentartag (ODOK), 2010, Leoben, Austria.
- *Linked Data im Kontext Digitaler Bibliothekssysteme.* Semantic Web in Bibliotheken (SWIB), 2009, Cologne, Germany.
- *CIDOC CRM in Practice — Experiences, Problems, and Possible Solutions.* Workshop “Vernetzte Datenwelten”, Deutschen Archäologisches Institut (DAI), 2009, Berlin, Germany.
- *Linked Data Tutorial.* Vlaams Theater Instituut, 2009, Brussels, Belgium.

## Research Visits

- *Los Alamos National Labs.* May 2009, Los Alamos, USA.

## Event organization

### Conferences

- *11th International Conference on Web Engineering (ICWE 2011)*, Doctoral consortium co-chair
- *International Conference on Dublin Core and Metadata Applications (DC 2008)* - Poster chair.
- *Very Large Databases Conference (VLDB 2007)*, Vienna, Austria – local conference organization.

### Tutorials

- *Web of Data in the Context of Multimedia.* At 4th International Conference on Semantic and Digital Media Technologies (SAMT2009), Graz, Austria.
- *Semantic Digital Libraries Tutorial.* At the 16th World Wide Web Conference (WWW 2007), the 4th European Semantic Web Conference (ESWC 2007), and the ACM/IEEE Joint Conferences on Digital Libraries (JCDL 2006).

### Workshops

- *Linked Data Camp 2009.* At Museumsquartier (MQ) Vienna.
- *Web of Data Practitioner’s Days 2008.* At the University of Vienna.

## Program Committee memberships

### Journals

- *International Journal on Semantic Web and Information Systems (IJSWIS)*, 2012
- *Multimedia Tools and Applications*, 2010, 2011

- *International Journal on Metadata, Semantics, and Ontologies*, 2010, 2012
- *International Journal on Digital Libraries*, 2009, 2012
- *ACM Computing Survey*, 2009

## Conferences

- *World Wide Web (WWW) - Demo track*, 2012
- *International Conference on Web Engineering (ICWE)*, 2011–2013
- *International Conference on Theory and Practice of Digital Libraries (TPDL)*, 2010–2013
- *Extended Semantic Web Conference (ESWC)*, 2010, 2012
- *IEEE Conference on Commerce and Enterprise Computing (CEC)*, 2010–2012
- *International Conference on Semantic Systems (I-Semantics)*, 2010
- *Dublin Core Conference (DC)*, 2008–2013
- *International Conference on Availability, Reliability and Security (ARES)*, 2006

## Workshops

- *Linked Data Triplication Challenge*, 2011, co-located with I-Semantics
- *Workshop on Scripting and Development for the Semantic Web (SFSW)*, 2009, 2010 co-located with the European Semantic Web Conference (ESWC)
- *Networked Knowledge Organization Systems and Services Workshop (NKOS)*, 2006 – 2013
- *International Workshop on Web Semantics (WebS)*, 2004 – 2013

## Software contributions

- *Maphub*: design and implementation of Maphub, a Web-portal for annotating and sharing digitized historical maps. Available at: <http://maphub.github.com>
- *qSKOS*: supported the design of qSKOS, which is a tool for finding quality issues in SKOS vocabularies. Available at: <https://github.com/cmader/qSKOS/>
- *ESE2EDM*: design and implementation of the Europeana Linked Open Data Pilot. Available at: <https://github.com/behas/ese2edm>
- *Lucene-SKOS: A SKOS Analyzer module for Apache Lucene and Solr*: design and implementation. Available at: <https://github.com/behas/lucene-skos>
- *DSNotify*: design and implementation of the Linked Data specific system components. Available at <http://www.cibiv.at/~niko/dsnotify/>.
- *The YUMA Annotation Framework*: contributed to architecture and conceptual design. Available at <https://github.com/yuma-annotation>
- *BRICKS Digital Library Infrastructure*: contributed the Metadata Management part of a distributed digital library infrastructure. Available at <http://www.brickcommunity.org>
- *OAI2LOD Server*: a component to integrate OAI-PMH data providers into the Linked Data environment. Available at <https://github.com/behas/oai2lod>

- *MediaSpaces Mapping API*: a component to define mappings among distinct, incompatible metadata vocabularies (ontologies). Enables uniform access to multiple autonomous SPARQL data sources. Available at: <http://mediaspaces.svn.sourceforge.net/viewvc/mediaspaces/mapping/trunk/>

## Dataset contributions

- *data.europeana.eu*: contains open metadata on approximately 20 million texts, images, videos and sounds gathered by Europeana. All metadata are released under Creative Commons CC0 and therefore dedicated to the public domain. The metadata follow the Europeana Data Model and clients can access data either by dereferencing URIs, downloading data dumps, or executing SPARQL queries against the dataset. They can also follow the links to external linked data sources, such as the Swedish cultural heritage aggregator (SOCH), GeoNames, the GEMET thesaurus, or DBPedia. Available at: <http://data.europeana.eu/download/2.0/>