

CURRICULUM VITAE

OLAF HARTIG

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SHORT BIO

I am an Assistant Professor (Universitetslektor) at the Department of Computer and Information Science of Linköping University. I hold a Ph.D. in Computer Science from the Humboldt-Universität zu Berlin, and worked previously as a postdoctoral research fellow at the Cheriton School of Computer Science at the University of Waterloo and, thereafter, at the Hasso Plattner Institute, Potsdam. I am interested in problems related to the management of data and databases. My focus in this broad context is on data *on* the Web and on graph data, as well as on problems in which the data is distributed over multiple, autonomous and/or heterogeneous sources. Regarding these topics, my interests range from systems-building related research (e.g., efficient storage of data, query processing, and query optimization) all the way to theoretical foundations (e.g., complexity and expressive power of query languages). I was honored with the SWSA Distinguished Dissertation Award in 2015 for my Ph.D. dissertation “Querying a Web of Linked Data: Foundations and Query Execution,” and I have received three best research paper awards (ESWC 2009, ESWC 2015, ISWC 2017). I am leader or contributor of several open source projects, most notably SQUIN, which is a novel query processing system for the Semantic Web. I co-organized international research workshops, served on multiple program committees, and participated as an invited expert in the provenance incubator group and the provenance working group of the World Wide Web Consortium. According to Google Scholar, my publications have received more than 2000 citations, and my h-index is 20.

ACADEMIC POSITIONS HELD

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| since 2016 | Universitetslektor (assistant professor),
Department of Computer and Information Science (IDA), Linköping University, Sweden. |
| 2015 – 2016 | Postdoctoral research fellow,
Hasso Plattner Institute for IT Systems Engineering, University of Potsdam, Germany. |
| 2012 – 2014 | Postdoctoral research fellow,
Cheriton School of Computer Science, University of Waterloo, Canada. |
| 2007 – 2012 | Research and teaching assistant,
Institut für Informatik, Humboldt-Universität zu Berlin, Germany. |
| 2006 – 2007 | Research assistant,
Institut für Informatik, Humboldt-Universität zu Berlin, Germany. |

EDUCATION

- 2014 **Dr. rer. nat.**, Institut für Informatik, Humboldt-Universität zu Berlin, Germany.
Thesis title: “Querying a Web of Linked Data: Foundations and Query Execution”
- 2006 **Dipl.-Inf.**, Institut für Informatik, Humboldt-Universität zu Berlin, Germany.
Thesis title: “Rule-Based Query Optimization for SPARQL” (in German)
- 1999 **Math.-Tech. Informatiker**, Computing Center, Humboldt-Universität zu Berlin, Germany.
- 1996 **Abitur**, Gymnasium zum Kienberg, Berlin, Germany.
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ADDITIONAL TRAINING

- 2017 **PhD supervision course** (faculty-specific part), Faculty of Science and Engineering, Linköping University
- 2017 **Docent course**, Faculty of Engineering LTH, Lund University
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PROFESSIONAL EXPERIENCE

- 2015 – 2016 **Consulting** on research and development of a framework for graph data analytics on graphics processing units (GPUs), SYSTAP, LLC, Washington, DC, USA.
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VISITING SCHOLAR APPOINTMENTS

- 2016 **Visiting researcher**, Department of Computer Science, Universidad de Chile, Chile. Invited by Dr. Jorge Pérez. March 2016.
- 2015 **Visiting researcher**, Department of Computer Science, Pontificia Universidad Catolica de Chile, Chile. Invited by Prof. Marcelo Arenas and Dr. Carlos Buil-Aranda. March 2015.
- 2014 **Visiting researcher**, Department of Mechanical and Industrial Engineering, University of Toronto, Canada. Invited by Prof. Mariano P. Consens. December 2014.
- 2013 **Visiting researcher**, Faculty of Computer Science, Free University of Bozen-Bolzano, Italy. Invited by Dr. Giuseppe Pirrò. December 2013.
- 2010 **Visiting researcher**, Talis Group Ltd, Birmingham, UK. Invited by Dr. Tom Heath. July – October 2010.
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AWARDS

1. Distinguished Dissertation Award of the Semantic Web Science Association (SWSA), July 2015.
2. Best Research Paper Award at the 16th International Semantic Web Conference (ISWC), October 2017.
3. Best Research Paper Award at the 12th Extended Semantic Web Conference (ESWC), June 2015.

4. Best Research Paper Award at the 6th Extended Semantic Web Conference (ESWC), June 2009.
 5. Best Poster Award at the 16th International Semantic Web Conference (ISWC), October 2017.
 6. Best Poster Award at the 15th International Semantic Web Conference (ISWC), October 2016.
 7. Best Demo Award at the 13th International Semantic Web Conference (ISWC), October 2014.
 8. Best Reviewer Award at the 11th International Conference on Web Engineering (ICWE), June 2011.
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PUBLICATIONS

REFEREED JOURNAL ARTICLES

- [1] Olaf Hartig and Giuseppe Pirrò. “SPARQL with Property Paths on the Web”. In: *Semantic Web Journal* 8.6 (2017), pp. 773–795
- [2] Olaf Hartig and Jorge Pérez. “LDQL: A Query Language for the Web of Linked Data”. In: *Journal of Web Semantics* 41 (2016), pp. 9–29
- [3] Ruben Verborgh, Miel Vander Sande, Olaf Hartig, Joachim Van Herwegen, Laurens De Vocht, Ben De Meester, Gerald Haesendonck, and Pieter Colpaert. “Triple Pattern Fragments: a Low-cost Knowledge Graph Interface for the Web”. In: *Journal of Web Semantics* 37–38 (2016), pp. 184–206
- [4] Olaf Hartig. “An Overview on Execution Strategies for Linked Data Queries”. In: *Datenbank-Spektrum* 13.2 (2013), pp. 89–99
- [5] Olaf Hartig and Andreas Langegger. “A Database Perspective on Consuming Linked Data on the Web”. In: *Datenbank-Spektrum* 10.2 (2010), pp. 57–66

BOOKS

- [6] Olaf Hartig. *Querying a Web of Linked Data: Foundations and Query Execution*. Vol. 24. Studies on the Semantic Web. IOS Press, 2016. ISBN: 978-1-61499-630-9

REFEREED CONFERENCE PAPERS

- [7] Olaf Hartig and Jorge Pérez. “Semantics and Complexity of GraphQL”. in: *Proceedings of The Web Conference 2018 (27th International World Wide Web Conference)*. 2018
- [8] Olaf Hartig, Ian Letter, and Jorge Pérez. “A Formal Framework for Comparing Linked Data Fragments”. In: *Proceedings of the 16th International Semantic Web Conference (ISWC)*. 2017
Note: This paper was awarded the best paper award in this conference.
- [9] Olaf Hartig and Carlos Buil-Aranda. “Bindings-Restricted Triple Pattern Fragments”. In: *Proceedings of the 15th International Conference on Ontologies, Databases, and Applications of Semantics (ODBASE)*. 2016
- [10] Magnus Knuth, Olaf Hartig, and Harald Sack. “Scheduling Refresh Queries for Keeping Results from a SPARQL Endpoint Up-to-Date”. In: *Proceedings of the 15th International Conference on Ontologies, Databases, and Applications of Semantics (ODBASE)*. 2016
- [11] Olaf Hartig and M. Tamer Özsu. “Walking without a Map: Ranking-Based Traversal for Querying Linked Data”. In: *Proceedings of the 15th International Semantic Web Conference (ISWC)*. 2016
- [12] Olaf Hartig and Jorge Pérez. “LDQL: A Query Language for the Web of Linked Data”. In: *Proceedings of the 14th International Semantic Web Conference (ISWC)*. 2015

- [13] Olaf Hartig and Giuseppe Pirrò. “A Context-Based Semantics for SPARQL Property Paths over the Web”. In: *Proceedings of the 12th Extended Semantic Web Conference (ESWC)*. 2015
Note: This paper was awarded the best paper award in this conference, and it was invited to a special issue of the Semantic Web Journal for selected papers of ESWC 2015.
- [14] Günes Aluç, M. Tamer Özsu, Khuzaima Daudjee, and Olaf Hartig. “Executing Queries over Schema-less RDF Databases”. In: *Proceedings of the 31st IEEE International Conference on Data Engineering (ICDE)*. 2015
- [15] Günes Aluç, Olaf Hartig, M. Tamer Özsu, and Khuzaima Daudjee. “Diversified Stress Testing of RDF Data Management Systems”. In: *Proceedings of the 13th International Semantic Web Conference (ISWC)*. 2014
- [16] Ruben Verborgh, Olaf Hartig, Ben De Meester, Gerald Haesendonck, Laurens De Vocht, Miel Vander Sande, Richard Cyganiak, Pieter Colpaert, Erik Mannens, and Rik Van de Walle. “Querying Datasets on the Web with High Availability”. In: *Proceedings of the 13th International Semantic Web Conference (ISWC)*. 2014
- [17] Olaf Hartig and M. Tamer Özsu. “Reachable Subwebs for Traversal-Based Query Execution”. In: *Proceedings of the 23rd International World Wide Web Conference (WWW), Web Science Track*. 2014
- [18] Olaf Hartig and Johann-Christoph Freytag. “Foundations of Traversal Based Query Execution over Linked Data”. In: *Proceedings of the 23rd ACM Conference on Hypertext and Social Media*. 2012
- [19] Olaf Hartig. “SPARQL for a Web of Linked Data: Semantics and Computability”. In: *Proceedings of the 9th Extended Semantic Web Conference (ESWC)*. 2012
- [20] Olaf Hartig. “Zero-Knowledge Query Planning for an Iterator Implementation of Link Traversal Based Query Execution”. In: *Proceedings of the 8th Extended Semantic Web Conference (ESWC)*. 2011
- [21] Olaf Hartig, Christian Bizer, and Johann-Christoph Freytag. “Executing SPARQL Queries over the Web of Linked Data”. In: *Proceedings of the 8th International Semantic Web Conference (ISWC)*. 2009
- [22] Olaf Hartig. “Querying Trust in RDF Data with tSPARQL”. in: *Proceedings of the 6th Extended Semantic Web Conference (ESWC)*. 2009
Note: This paper was awarded the best paper award in this conference.
- [23] Olaf Hartig and Ralf Heese. “The SPARQL Query Graph Model for Query Optimization”. In: *Proceedings of the 4th European Semantic Web Conference (ESWC)*. 2007

BOOK CHAPTERS

- [24] Olaf Hartig. “Linked Data Query Processing based on Link Traversal”. In: *Linked Data Management*. Ed. by Andreas Harth, Katja Hose, and Ralf Schenkel. CRC Press, 2014. Chap. 9, pp. 263–282
- [25] Gunnar Aastrand Grimnes, Olaf Hartig, Malte Kiesel, and Marcus Liwicki. “Linked Open Data, Semantic Web Datensätze”. In: *Semantische Technologien: Grundlagen – Konzepte – Anwendungen*. Ed. by Andreas Dengel. Springer, 2011. Chap. 7, pp. 183–203

REFEREED WORKSHOP PAPERS

- [26] Olaf Hartig. “Foundations of RDF* and SPARQL* – An Alternative Approach to Statement-Level Metadata in RDF”. in: *Proceedings of the 11th Alberto Mendelzon International Workshop on Foundations of Data Management (AMW)*. 2017
- [27] Olaf Hartig and Jorge Pérez. “An Initial Analysis of Facebook’s GraphQL Language”. In: *Proceedings of the 11th Alberto Mendelzon International Workshop on Foundations of Data Management (AMW)*. 2017

- [28] Olaf Hartig. “LDQL: A Language for Linked Data Queries”. In: *Proceedings of the 9th Alberto Mendelzon International Workshop on Foundations of Data Management (AMW)*. 2015
- [29] Jun Zhao and Olaf Hartig. “Towards Interoperable Provenance Publication on the Linked Data Web”. In: *Proceedings of the 5th Linked Data on the Web Workshop (LDOW)*. 2012
- [30] Olaf Hartig. “How Caching Improves Efficiency and Result Completeness for Querying Linked Data”. In: *Proceedings of the 4th Linked Data on the Web Workshop (LDOW)*. 2011
- [31] Olaf Hartig and Frank Huber. “A Main Memory Index Structure to Query Linked Data”. In: *Proceedings of the 4th Linked Data on the Web Workshop (LDOW)*. 2011
- [32] Olaf Hartig and Jun Zhao. “Publishing and Consuming Provenance Metadata on the Web of Linked Data”. In: *Proceedings of the 3rd International Provenance and Annotation Workshop (IPAW)*. 2010
- [33] Olaf Hartig. “Towards a Data-Centric Notion of Trust in the Semantic Web”. In: *Proceedings of the 2nd Workshop on Trust and Privacy on the Social and Semantic Web (SPOT)*. 2010
- [34] Olaf Hartig and Jun Zhao. “Using Web Data Provenance for Quality Assessment”. In: *Proceedings of the 1st International Workshop on the Role of Semantic Web in Provenance Management (SWPM)*. 2009
- [35] Olaf Hartig, Hannes Mühleisen, and Johann-Christoph Freytag. “Linked Data for Building a Map of Researchers”. In: *Proceedings of the 5th Workshop on Scripting and Development for the Semantic Web (SFSW)*. 2009
Note: This paper was awarded scripting challenge award in this workshop.
- [36] Olaf Hartig. “Provenance Information in the Web of Data”. In: *Proceedings of the 2nd Linked Data on the Web Workshop (LDOW)*. 2009
- [37] Olaf Hartig, Martin Kost, and Johann-Christoph Freytag. “Automatic Component Selection with Semantic Technologies”. In: *Proceedings of the 4th International Workshop on Semantic Web Enabled Software Engineering (SWESE)*. 2008

EDITED PROCEEDINGS

- [38] Eva Blomqvist, Diana Maynard, Aldo Gangemi, Rinke Hoekstra, Pascal Hitzler, and Olaf Hartig, eds. *The Semantic Web - 14th International Conference, ESWC 2017, Portorož, Slovenia, May 28 - June 1, 2017, Proceedings, Part I*. vol. 10249. Lecture Notes in Computer Science. 2017. ISBN: 978-3-319-58067-8
- [39] Eva Blomqvist, Diana Maynard, Aldo Gangemi, Rinke Hoekstra, Pascal Hitzler, and Olaf Hartig, eds. *The Semantic Web - 14th International Conference, ESWC 2017, Portorož, Slovenia, May 28 - June 1, 2017, Proceedings, Part II*. vol. 10250. Lecture Notes in Computer Science. 2017. ISBN: 978-3-319-58450-8
- [40] Eva Blomqvist, Katja Hose, Heiko Paulheim, Agnieszka Lawrynowicz, Fabio Ciravegna, and Olaf Hartig, eds. *The Semantic Web: ESWC 2017 Satellite Events, Portorož, Slovenia, May 28 - June 1, 2017, Revised Selected Papers*. Vol. 10577. Lecture Notes in Computer Science. 2017. ISBN: 978-3-319-70406-7
- [41] Olaf Hartig, Juan Sequeda, and Aidan Hogan, eds. *Proceedings of the Sixth International Workshop on Consuming Linked Data (COLD 2015), co-located with the 14th International Semantic Web Conference (ISWC)*. CEUR Workshop Proceedings, Vol-1426. 2015
- [42] Olaf Hartig, Aidan Hogan, and Juan Sequeda, eds. *Proceedings of the Fifth International Workshop on Consuming Linked Data (COLD), co-located with the 13th International Semantic Web Conference (ISWC)*. CEUR Workshop Proceedings, Vol-1264. 2014

- [43] Fernando Bobillo, Rommel N. Carvalho, Davide Ceolin, Paulo Cesar G. da Costa, Claudia d’Amato, Nicola Fanizzi, Kathryn B. Laskey, Kenneth J. Laskey, Thomas Lukasiewicz, Trevor P. Martin, Matthias Nickles, Michael Pool, Tom De Nies, Olaf Hartig, Paul T. Groth, and Stephen Marsh, eds. *Proceedings of the 10th International Workshop on Uncertainty Reasoning for the Semantic Web (URSW), co-located with the 13th International Semantic Web Conference (ISWC)*. CEUR Workshop Proceedings, Vol-1259. 2014
- [44] Olaf Hartig, Juan Sequeda, Aidan Hogan, and Takahide Matsutsuka, eds. *Proceedings of the Fourth International Workshop on Consuming Linked Data (COLD), co-located with the 12th International Semantic Web Conference (ISWC)*. CEUR Workshop Proceedings, Vol-1034. 2013
- [45] Juan Sequeda, Andreas Harth, and Olaf Hartig, eds. *Proceedings of the Third International Workshop on Consuming Linked Data (COLD), co-located with the 11th International Semantic Web Conference (ISWC)*. CEUR Workshop Proceedings, Vol-905. 2012
- [46] Olaf Hartig, Andreas Harth, and Juan Sequeda, eds. *Proceedings of the Second International Workshop on Consuming Linked Data (COLD), co-located with the 10th International Semantic Web Conference (ISWC)*. CEUR Workshop Proceedings, Vol-782. 2011
- [47] Olaf Hartig, Andreas Harth, and Juan Sequeda, eds. *Proceedings of the First International Workshop on Consuming Linked Data (COLD), co-located with the 9th International Semantic Web Conference (ISWC)*. CEUR Workshop Proceedings, Vol-665. 2010

REFEREED CONFERENCE DEMOS

- [48] Alexander Potocki, Muhammad Saleem, Tommaso Soru, Olaf Hartig, and Axel-Cyrille Ngonga Ngomo. “Federated SPARQL Query Processing Via CostFed”. In: *Proceedings of Posters and Demos at the 16th International Semantic Web Conference (ISWC)*. 2017
- [49] Ruben Verborgh, Olaf Hartig, Ben De Meester, Gerald Haesendonck, Laurens De Vocht, Miel Vander Sande, Richard Cyganiak, Pieter Colpaert, Erik Mannens, and Rik Van de Walle. “Low-Cost Queryable Linked Data through Triple Pattern Fragments”. In: *Proceedings of Posters and Demos at the 13th International Semantic Web Conference (ISWC)*. 2014
Note: This demo was awarded the best demo award in this conference.
- [50] Olaf Hartig. “SQUIN: A Traversal Based Query Execution System for the Web of Linked Data”. In: *Proceedings of the 2013 ACM SIGMOD International Conference on Management of Data*. 2013
- [51] Olaf Hartig, Jun Zhao, and Hannes Mühleisen. “Automatic Integration of Metadata into the Web of Linked Data”. In: *Proceedings of the 2nd Workshop on Trust and Privacy on the Social and Semantic Web (SPOT)*. 2010
- [52] Olaf Hartig, Martin Kost, and Johann-Christoph Freytag. “Designing Component-Based Semantic Web Applications with DESWAP”. in: *Proceedings of Posters and Demos at the 7th International Semantic Web Conference (ISWC)*. 2008

REFEREED CONFERENCE POSTERS

- [53] Olaf Hartig. “RDF* and SPARQL*: An Alternative Approach to Annotate Statements in RDF”. in: *Proceedings of Posters and Demos at the 16th International Semantic Web Conference (ISWC)*. 2017
Note: This poster was awarded the People’s Choice Best Poster Award in this conference.

- [54] Olaf Hartig and Carlos Buil-Aranda. “Reducing the Network Load of Triple Pattern Fragments by Supporting Bind Joins”. In: *Proceedings of Posters and Demos at the 15th International Semantic Web Conference (ISWC)*. 2016
Note: This poster was awarded the People’s Choice Best Poster Award in this conference.
- [55] Olaf Hartig and Tom Heath. “Query Prediction with Context Models for Populating Personal Linked Data Caches”. In: *Proceedings of the Poster Session at the 23rd ACM Conference on Hypertext and Social Media*. 2012
- [56] Olaf Hartig and Tom Heath. “Populating Personal Linked Data Caches using Context Models”. In: *Proceedings of the Poster Session at the 21th International World Wide Web Conference (WWW)*. 2012
- [57] Olaf Hartig and Jun Zhao. “Integrating Provenance into the Web of Data”. In: *Proceedings of Posters and Demos at the 7th Extended Semantic Web Conference (ESWC)*. 2010

THESES

- [58] Olaf Hartig. “Querying a Web of Linked Data: Foundations and Query Execution”. PhD thesis. Humboldt-Universität zu Berlin, Germany, 2014
Note: This dissertation was awarded the 2015 SWSA Distinguished Dissertation Award.
- [59] Olaf Hartig. “Grundlagen regelbasierter Optimierung für SPARQL”. Diploma thesis. Humboldt-Universität zu Berlin, Germany, 2006

OTHER PUBLICATIONS

- [60] Olaf Hartig, Maria-Esther Vidal, and Johann-Christoph Freytag. “Federated Semantic Data Management (Dagstuhl Seminar 17262)”. In: *Dagstuhl Reports 7.6* (2017), pp. 135–167
- [61] Olaf Hartig and Olivier Curé. “Semantic Data Management in Practice (Tutorial Description)”. In: *Companion Volume of the Proceedings of the 26th International Conference on World Wide Web (WWW)*. 2017
- [62] Olaf Hartig. “Reconciliation of RDF* and Property Graphs”. In: *CoRR arXiv/1409.3288* (2014)
- [63] Olaf Hartig and Bryan Thompson. “Foundations of an Alternative Approach to Reification in RDF”. in: *CoRR arXiv/1406.3399* (2014)
- [64] Olaf Hartig and M. Tamer Özsu. “Linked Data Query Processing (Tutorial Description)”. In: *Proceedings of the 30th IEEE International Conference on Data Engineering (ICDE)*. 2014
- [65] Günes Aluç, M. Tamer Özsu, Khuzaima Daudjee, and Olaf Hartig. *chameleon-db: a Workload-Aware Robust RDF Data Management System*. Tech. rep. CS-2013-10. University of Waterloo, Sept. 2013
- [66] Olaf Hartig. “An Introduction to SPARQL and Queries over Linked Data (Tutorial Description)”. In: *Proceedings of the 12th International Conference on Web Engineering (ICWE)*. 2012
- [67] Olaf Hartig, Juan Sequeda, Jamie Taylor, and Patrick Sinclair. “How to Consume Linked Data on the Web (Tutorial Description)”. In: *Companion Volume of the Proceedings of the 19th International Conference on World Wide Web (WWW)*. 2010
- [68] Yolanda Gil, James Cheney, Paul Groth, Olaf Hartig, Simon Miles, Luc Moreau, and Paulo Pinheiro da Silva, eds. *Provenance XG Final Report*. W3C Incubator Group Report. 2010

PRESENTATIONS

TUTORIALS

1. Olaf Hartig and Olivier Curé. “Semantic Data Management in Practice”. Half-day tutorial at the 16th International Semantic Web Conference (ISWC 2017), Vienna, Austria, 2017.
2. Olaf Hartig and Olivier Curé. “Semantic Data Management in Practice”. Half-day tutorial at the 26th International World Wide Web Conference (WWW 2017), Perth, Australia, 2017.
3. Olaf Hartig and M. Tamer Özsu. “Linked Data Query Processing”. 1.5h tutorial at the 30th IEEE International Conference on Data Engineering (ICDE 2014), Chicago, IL, USA, 2014.
4. Paul Groth, Jun Zhao, and Olaf Hartig. “Getting to know PROV - the W3C Provenance Specifications”. Half-day tutorial at the 10th Extended Semantic Web Conference (ESWC 2013), Montpellier, France, 2013.
5. Olaf Hartig. “Linked Data Query Processing”. Half-day tutorial at the 22th International World Wide Web Conference (WWW 2013), Rio de Janeiro, Brazil, 2013.
6. Olaf Hartig. “An Introduction to SPARQL and Queries over Linked Data”. Half-day tutorial at the 12th International Conference on Web Engineering (ICWE 2012), Berlin, Germany, 2012.
7. Olaf Hartig and Juan Sequeda. “How to Consume Linked Data on the Web”. Half-day tutorial at the 19th International World Wide Web Conference (WWW 2010), Raleigh, NC, USA, 2010.
8. Juan Sequeda, Olaf Hartig, Patrick Sinclair, and Jamie Taylor. “How to Consume Linked Data on the Web”. Half-day tutorial at the 8th International Semantic Web Conference (ISWC 2009), Washington DC, USA, 2009.
9. Tom Heath, Michael Hausenblas, Chris Bizer, Richard Cyganiak, and Olaf Hartig. “How to Publish Linked Data on the Web”. Half-day tutorial at the 7th International Semantic Web Conference (ISWC 2008), Karlsruhe, Germany, 2008.

INVITED TALKS

1. “DASL: A Scala-based DSL for Graph Analytics on GPUs”. A talk given at the Department of Computer Science, Universidad de Chile, Chile, March 2016.
2. “DASL: A Scala-based DSL for Graph Analytics on GPUs”. A talk given at the 4th Workshop on Graph-based Technologies and Applications (GraphTA), Barcelona, Spain, March 2016.
3. “Querying the Web of Linked Data”. A talk given at the Department of Computer and Information Science, Linköping University, Sweden, September 2015.
4. “Rethinking Online SPARQL Querying to Support Incremental Result Visualization”. A keynote speech given at the 5th International Workshop on Usage Analysis and the Web of Data (USEWOD 2015) co-located with the 12th Extended Semantic Web Conference (ESWC 2015), Portoroz, Slovenia, June 2015.
5. “Traversal-Based Linked Data Queries”. A talk given at the Department of Computer Science, Universidad de Chile, Chile, March 2015.
6. “Integrating the Property Graph and RDF Data Models”. A talk given at the 5th Technical User Community meeting of the Linked Data Benchmark Council, Athens, Greece, November 2014.
7. “Querying Linked Data on the Web”. A talk given at the Department of Computer Science, University of Toronto, Canada, July 2013.
8. “Querying Linked Data on the Web”. A talk given at the Department of Informatics, University of Zurich, Zurich, Switzerland, July 2012.
9. “Conceiving the Web of Linked Data as a Database”. A talk given at the Dagstuhl Seminar Semantic Data Management, Schloss Dagstuhl, Germany, April 2012.

10. “An Overview on W3C PROV-AQ: Provenance Access and Query”. A talk given at the Dagstuhl Seminar Semantic Data Management, Schloss Dagstuhl, Germany, April 2012.
11. “An Overview on W3C PROV-AQ: Provenance Access and Query”. A talk given at the Dagstuhl Seminar Principles of Provenance, Schloss Dagstuhl, Germany, February 2012.
12. “Linked Data Management and SPARQL Querying”. Lecture at the Indian-Summer School on Linked Data, Leipzig, Germany, September 2011.
13. “A Novel Approach to Query the Web of Linked Data”. A talk given at the Distributed Artificial Intelligence Laboratory (DAI-Lab), Technische Universität Berlin, Berlin, Germany, March 2011.
14. “A Novel Approach to Query the Web of Linked Data”. A talk given at the School of Computer Science, University of Manchester, Manchester, UK, August 2010.
15. “A Novel Approach to Query the Web of Linked Data”. A talk given at the Department of Computer Science, University of Sheffield, Sheffield, UK, August 2010.
16. “Linked Data on the Web”. A talk given at the German Research Center for Artificial Intelligence (DFKI), Kaiserslautern, Germany, March 2010.
17. “Querying the Web of Linked Data as if it were a Database”. A talk given at the Berlin Semantic Web Meetup, Berlin, Germany, February 2010.
18. “Querying the Web of Linked Data as if it were a Database”. A talk given at the Austin Semantic Web Meetup, Austin, Texas, USA, October 2009.
19. “Executing SPARQL Queries over the Web of Linked Data”. A talk given at the Department of Computer Science, University of Texas, Austin, Texas, USA, October 2009.
20. “An Introduction to tSPARQL”. A talk given at the Institute of Computer Science, University of Leipzig, Leipzig, Germany, October 2008.

FUNDING

- Grant of the Centrum för Industriell Informationsteknologi (CENIIT) at Linköping University, 2016.
Role: principal investigator
Budget: 440,000 SEK per year, maximum duration 6 years
- Collaborative Support Program Grant (# N62909-15-1-C001) awarded by the U.S. Office of Naval Research Global to support the 5th International Workshop on Consuming Linked Data (COLD 2014), 2014.
Role: principal investigator
Budget: 9,950 USD
- Collaborative Support Program Grant (# N62909-13-1-C264) awarded by the U.S. Office of Naval Research Global to support the 4th International Workshop on Consuming Linked Data (COLD 2013), 2013.
Role: contribution to the proposal
Budget: 9,200 USD

PROFESSIONAL SERVICES

CO-ORGANIZED EVENTS

- **Co-organizer** of a Dagstuhl Seminar on Federated Semantic Data Management, Dagstuhl, Germany, 2017.
- **Co-organizer** of the 6th “Linked Data in Sweden” Day, Linköping, Sweden, 2017.
- **Proceedings chair** of the 14th Extended Semantic Web Conference (ESWC), Portoroz, Slovenia, 2017.

- **Workshop co-chair** of the 7th International Workshop on Consuming Linked Data (COLD 2016), co-located with the 15th International Semantic Web Conference (ISWC 2016), Kobe, Japan, 2016.
- **Workshop co-chair** of the 6th International Workshop on Consuming Linked Data (COLD 2015), co-located with the 14th International Semantic Web Conference (ISWC 2015), Bethlehem, PA, USA, 2015.
- **Workshop co-chair** of the 5th International Workshop on Consuming Linked Data (COLD 2014), co-located with the 13th International Semantic Web Conference (ISWC 2014), Riva del Garda, Italy, 2014.
- **Workshop co-chair** of the 3rd International Workshop on Methods for Establishing Trust in Open Data (METHOD 2014), co-located with the 13th International Semantic Web Conference (ISWC 2014), Riva del Garda, Italy, 2014.
- **Workshop co-chair** of the 4th International Workshop on Consuming Linked Data (COLD 2013), co-located with the 12th International Semantic Web Conference (ISWC 2013), Sydney, Australia, 2013.
- **Workshop co-chair** of the 3rd International Workshop on Consuming Linked Data (COLD 2012), co-located with the 11th International Semantic Web Conference (ISWC 2012), Boston, USA, 2012.
- **Semantic technologies coordinator** of the 9th Extended Semantic Web Conference (ESWC 2012), Heraklion, Greece, 2012.
- **Workshop co-chair** of the 2nd International Workshop on Consuming Linked Data (COLD 2011), co-located with the 10th International Semantic Web Conference (ISWC 2011), Bonn, Germany, 2011.
- **Co-organizer** of the 2nd Linked Data-a-thon at the 10th International Semantic Web Conference (ISWC 2011), Bonn, Germany, 2011.
- **Workshop co-chair** of the 1st International Workshop on Consuming Linked Data (COLD 2010), co-located with the 9th International Semantic Web Conference (ISWC 2010), Shanghai, China, 2010.

JOURNAL REVIEWER

- Associate Editor of the Journal of Web Semantics (since July 2017)
- IEEE Computer: 2013
- IEEE Transactions on Knowledge and Data Engineering (TKDE): 2013, 2016, 2017 (2 times)
- ACM Computing Surveys: 2016
- ACM Journal of Data and Information Quality (JDIQ): 2014, 2015, 2016 (2 times)
- VLDB Journal: 2016
- Information Systems (IS): 2014, 2015
- Journal on Web Semantics (JWS): 2010 (3 times), 2011, 2014, 2015, 2016, 2017
- Semantic Web Journal: 2014, 2016, 2017, 2018
- International Journal on Semantic Web and Information Systems (IJSWIS): 2013
- Knowledge and Information Systems (KAIS): 2011
- PLOS ONE: 2017

PROGRAM COMMITTEE MEMBER

- IEEE International Conference on Data Engineering (ICDE): 2015
- International World Wide Web Conference (WWW): 2012, 2013, 2016, 2017, 2018
- International Joint Conference on Artificial Intelligence (IJCAI): 2011 (Senior PC Member)
- International Semantic Web Conference (ISWC): 2010 (Poster & Demo Track), 2016, 2017 (Senior PC Member)
- Extended Semantic Web Conference (ESWC): 2010 (In-Use Track), 2011–2017, 2018 (Track Co-Chair)

- International Conference on Web Engineering (ICWE): 2011, 2012
Note: I was awarded the *best reviewer award* in ICWE 2011.
- International Conference on Information Quality (ICIQ): 2010, 2011, 2013
- International Conference on Semantic Systems (Semantics): 2009, 2010, 2011, 2013, 2014, 2017
- Conference on Semantic Technology and Knowledge Engineering (STAKE): 2010
- Workshop on Linked Data on the Web (LDOW): 2009, 2010, 2011, 2012, 2014
- Alberto Mendelzon International Workshop on Foundation of Databases and the Web (AMW): 2017
- International Workshop on Linked Web Data Management (LWDM): 2013, 2014, 2015, 2016
- International Workshop on Data Engineering meets the Semantic Web (DESWEB): 2014
- International Provenance and Annotation Workshop (IPAW): 2010, 2012, 2016
- International Workshop on Methods for Establishing Trust in Open Data (METHOD): 2012, 2013, 2015
- International Workshop on Querying the Web of Data (QuWeDa): 2017
- International Workshop on Benchmarking Linked Data (BLINK): 2016
- International Workshop on Hyperlinking in the Web of Linked Things (WLT): 2014
- Workshop on Legal Knowledge and the Semantic Web (LK&SW): 2013
- International Workshop on Resource Discovery (RED): 2013
- IUI Workshop on Context-aware Retrieval and Recommendation (CaRR): 2011
- International Workshop on the Role of Semantic Web in Provenance Management (SWPM): 2010, 2012
- International Workshop on Traceability and Compliance of Semi-Structured Processes (TC4SP): 2010, 2011
- International Workshop on Trust and Privacy on the Social and Semantic Web (SPOT): 2010
- International Workshop on Social Data on the Web (SDoW): 2009, 2010, 2011

OTHER

- **Evaluator** for the Chilean National Science and Technology Commission (CONICYT), 2015.
- **Scientific committee member**, 12th EDBT Summer School, 2015.
- **Invited expert** in the World Wide Web Consortium (W3C) Provenance Working Group, 2011 – 2013.
- **Invited expert** in the World Wide Web Consortium (W3C) Provenance Incubator Group, 2009 – 2010.

TEACHING AND SUPERVISION

COURSES

- **Database Technology**, Linköping University. Fall 2017.
 Class size and level: 124 undergraduate students
 My roles: course leader, examiner, sole lecturer
- **Advanced Data Models and Databases**, Linköping University. Fall 2017.
 Class size and level: 33 undergraduate and graduate students
 My role: lecturer of 3 lectures
- **Database Technology**, Linköping University. Spring 2017.
 Class size and level: 257 undergraduate students
 My roles: course leader, examiner, sole lecturer

- **Database Technology**, Linköping University. Fall 2016.
Class size and level: 103 undergraduate students
My roles: course leader, examiner, sole lecturer (with new lecture notes created by me), lab assistant
- **Advanced Data Models and Databases**, Linköping University. Fall 2016.
Class size and level: 21 undergraduate and graduate students
My role: lecturer of 3 lectures (developed by me)
- **Computer Applications in Business: Databases**, University of Waterloo. Winter 2014.
Class size and level: 110 undergraduate students
My roles: course leader, examiner, sole lecturer
- **Principles of Database Management and Use**, University of Waterloo. Winter 2013.
Class size and level: 10 graduate students
My roles: course leader, examiner, sole lecturer (with new lecture notes created by me)

SEMINARS

- **Web Search**, Humboldt-Universität zu Berlin. Summer 2009.
Level: Diploma students; note: this seminar was developed by me
- **SPARQL – Querying the Web of Data**, Humboldt-Universität zu Berlin. Winter 2008/2009.
Level: Diploma students; note: this seminar was developed by me

TUTORIALS

- **Foundations of Database Systems**, Humboldt-Universität zu Berlin.
Terms: Summer 2011, Summer 2012
Level: Bachelor students
- **Foundations of Programming**, Humboldt-Universität zu Berlin.
Term: Summer 2010
Level: Bachelor students
- **Introduction to Database Systems**, Humboldt-Universität zu Berlin.
Terms: Winter 2007/2008, Winter 2008/2009, Winter 2009/2010, Winter 2010/2011
Level: Diploma students
- **Implementation of Database Systems**, Humboldt-Universität zu Berlin.
Terms: Summer 2008, Winter 2009/2010
Level: Diploma students

SUPERVISION OF PHD STUDENTS

1. Robin Keskisärkkä, Department of Computer and Information Science, Linköping University, ongoing, my role: co-supervisor since December 2017.
2. Jenni Reuben Shanthamoorthy, Department of Computer Science, Karlstad University, ongoing, my role: co-supervisor since August 2017.
3. Huanyu Li, Department of Computer and Information Science, Linköping University, ongoing, my role: co-supervisor since June 2017.
4. Günes Aluç, Cheriton School of Computer Science, University of Waterloo, successfully graduated in 2015, my role: co-supervisor from June 2012 to November 2014.

SUPERVISION OF BACHELOR, DIPLOMA, AND MASTER STUDENTS

1. Joakim Ericsson “*Object Migration in a Distributed, Heterogeneous SQL Database Network*” Master Thesis, Linköping University, ongoing, my roles: examiner, de-facto supervisor.
2. Tim Andersson “*Result Size Calculation for Facebook’s GraphQL Query Language*” Bachelor Thesis, Linköping University, ongoing, my roles: examiner, de-facto supervisor.
3. Rikard Eliasson “*Result Pointer Caching in a Linked Data Fragments Server*” Bachelor Thesis, Linköping University, ongoing, my roles: examiner, de-facto supervisor.
4. John Bengtson and Christoffer Nilsson “*Combining MongoDB and Elasticsearch to Achieve a Highly Available Search Engine*” Master Thesis, Linköping University, 2017, my roles: examiner, de-facto supervisor.
5. Gustav Stenhag “*Defining a power system’s historical operating states – The design, implementation and use of a computer-based framework*” Master Thesis, Linköping University, 2017, my role: supervisor.
6. Niklas Blomqvist and Philip Johansson “*An Approach to Achieve DBMS Vendor Independence for Ides AB’s Platform*” Bachelor Thesis, Linköping University, 2017, my roles: examiner, de-facto supervisor.
7. Robert Habrman “*Creating a Database and a User Interface for Storing Test Data for Radar Equipment*” Bachelor Thesis, Linköping University, 2017, my roles: examiner, de-facto supervisor.
8. Steffen Andre “*Querying the Web of Linked Data and Adhering to the Robots Exclusion Protocol*” (in German). Diploma Thesis, Humboldt-Universität zu Berlin, 2014, my role: supervisor.
9. Annika Flemming. “*Quality Characteristics of Linked Data Publishing Data Sources*” (in German). Diploma Thesis, Humboldt-Universität zu Berlin, 2011, my role: supervisor.
10. Thomas Riegmann. “*Provenance-Based Trust Assessment of Web Data*” (in German). Diploma Thesis, Humboldt-Universität zu Berlin, 2010, my role: supervisor.
11. Jan Wehrs. “*Caching Strategies for an Efficient Query Processing in the Web of Data*” (in German). Diploma Thesis, Humboldt-Universität zu Berlin, 2010, my role: supervisor.
12. Robert Nagel. “*Efficient Management of Trust Ratings for Web Data*” (in German). Diploma Thesis, Humboldt-Universität zu Berlin, 2009, my role: supervisor.
13. Heiko Müller. “*Trust Management for a Semantic Tagging Service*” (in German). Diploma Thesis, Humboldt-Universität zu Berlin, 2009, my role: supervisor.
14. Hermann Schwarz. “*Visualization of OWL-S Process Models*” (in German). Semester Thesis, Humboldt-Universität zu Berlin, 2007, my role: supervisor.
15. Carmen Valero. “*Intelligent Search for Software and Supported Functionalities in DESWAP.*” Master Thesis, Humboldt-Universität zu Berlin, 2007, my role: supervisor.

December 30, 2017