

# Robert Hoehndorf

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Day of birth: May 30, 1980  
Place of birth: Leipzig, Germany  
Marital status: Single  
Nationality: German

## Current position

Assistant Professor of Computer Science, King Abdullah University of Science and Technology.

## Educational background

- 2005-2009 PhD in Computer Science. University of Leipzig and Max Planck Institute for Evolutionary Anthropology.
- Member of graduate schools *Knowledge Representation* and *Leipzig School of Human Origins*
  - Thesis title: *Basic considerations for improving interoperability between ontology-based biological information systems*
  - Supervisors: Prof. Dr. Heinrich Herre and Dr. Janet Kelso
- 2001-2005 Diplom (M.Sc.) in Computer Science. University of Leipzig.
- Thesis title: *Situoid theory - an ontological approach to situation theory*
  - Thesis advisor: Prof. Dr. Heinrich Herre
  - Minor subject: Logics and Philosophy of Science

## Research experience

- 2013-2014 *Research Fellow* in Bioinformatics
- Independent research on ontologies in biology.
  - Department of Computer Science, Aberystwyth University
- 2012-2013 *Research associate.*
- Systematic analysis of model organism phenotypes.
  - Advisor: Paul N. Schofield
  - Department of Physiology, Development and Neuroscience, University of Cambridge, Cambridge, UK.
- 2010-2012 *Research associate.*
- Large-scale semantic integration of biomedical knowledge and data, with a particular focus on its applications in systems biology and computational modelling and the discovery of disease mechanisms.
  - Advisor: Georgios V. Gkoutos.
  - Department of Genetics, University of Cambridge, Cambridge, UK.
- 2009-2010 *Postdoctoral fellow.*
- Semantic integration of phenotypic information and the representation of disease.
  - Advisor: Dietrich Rebholz-Schuhmann.
  - European Bioinformatics Institute, Hinxton, UK.
- 2009 *Postdoctoral researcher.*
- Knowledge representation languages for biomedical ontologies to enable large-scale semantic integration and reasoning.
  - Advisor: Janet Kelso.
  - Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany.

## Teaching experience

- 2016-2017 *Instructor* for *Applied Ontology*
- Computer Science Program, King Abdullah University of Science and Technology
- 2015-2016 *Instructor* for *Knowledge Representation and Reasoning*
- Computer Science Program, King Abdullah University of Science and Technology

- 2015 *Organizer for Computer Science Graduate Seminar*
- Computer Science Program, King Abdullah University of Science and Technology
- 2014 *Instructor in Object-Oriented Programming*
- Software Engineering College, Northeastern University, Shenyang, China.
- 2013-2014 *Instructor in Professional And Personal Development*
- Department of Computer Science, Aberystwyth University
- 2013 *Instructor in Object-Oriented Programming*
- Software Engineering College, Northeastern University, Shenyang, China.
- 2013 *Co-instructor in Machine learning.*
- Department of Computer Science, Aberystwyth University.
- 2005-2008 *Co-instructor for seminars on Ontology in medical information systems.*
- Department of Computer Science, University of Leipzig.
- 2006-2007 *Instructor and co-organizer for seminars on Computer science and society and Information.*
- Department of Computer Science, University of Leipzig.
- 2002-2004 *Teaching assistant for C and Java programming courses.*
- Department of Computer Science, University of Leipzig.

## Student supervision

- 2016–2017 *Co-supervision of master thesis*
- Topic: deep learning on biological knowledge graphs
  - Life Sciences Division, Hamad Bin Khalifa University, Qatar
- 2014 *Supervision and Co-supervision for final year BSc Computer Science projects*
- Supervision of five BSc students
  - Department of Computer Science, Aberystwyth University
- 2008-2009 *Co-supervision of master thesis*
- Topic: ontology-based collaborative tagging in biomedicine.
  - Department of Computer Science, University of Leipzig and Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany.
- 2006-2008 *Co-supervision of master thesis*

- Topic: use of automated reasoning in a semantic wiki for life science data.
- Institute for Logics and Philosophy of Science, University of Leipzig and Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany.

2006-2008 *Co-supervision of master thesis*

- Topic: representing  $n$ -ary relations and roles in a semantic wiki.
- Department of Computer Science, University of Leipzig and Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany.

## TUTORIALS

2017 *Ontologies in Computational Biology*. 25th Conference on Intelligent Systems in Molecular Biology (ISMB) (with Michel Dumontier).

2016 *Bio-ontologies and their role in analyzing personal genome data*. 15th European Conference on Computational Biology (with Paul Schofield, Luke Slater, Imene Boudellioua).

2011 *Reasoning over biomedical ontologies*. 19th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB) and 10th European Conference on Computational Biology (ECCB) (with Michel Dumontier).

2011 *A little semantics goes a long way: getting more from Linked Data with OWL*. OWL: Experiences and Directions (OWLED) 2011 (with Michel Dumontier).

## Awards & fellowships

2009-2010 *Postdoctoral fellowship*.

- European Bioinformatics Institute, European Molecular Biology Laboratory, Hinxton, UK.

2005-2008 *PhD fellowship*.

- Graduate school “Knowledge Representation”, Department of Computer Science, University of Leipzig.

## Refereed publications

### JOURNAL ARTICLES

Boudellioua, I., Mahamad Razali, R. B., Kulmanov, M., Hashish, Y., Bajic, V. B., Goncalves-Serra, E., Schoenmakers, N., Gkoutos, G. V., Schofield, P. N., **Hoehndorf, R.**, “Semantic prioritization of novel causative genomic variants”. In: *PLOS Computational Biology* 13.4 (Apr. 2017), pp. 1–21.

Gkoutos, G. V., Schofield, P. N., **Hoehndorf, R.**, “The anatomy of phenotype ontologies: principles, properties and applications”. In: *Briefings in Bioinformatics* (2017).

- Kulmanov, M., **Hoehndorf, R.**, “Evaluating the effect of annotation size on measures of semantic similarity”. In: *Journal of Biomedical Semantics* 8.1 (Jan. 2017), p. 7.
- Motwalli, O., Essack, M., Jankovic, B. R., Ji, B., Liu, X., Ansari, H. R., **Hoehndorf, R.**, Gao, X., Arold, S. T., Mineta, K., Archer, J. A. C., Gojobori, T., Mijakovic, I., Bajic, V. B., “In silico screening for candidate chassis strains of free fatty acid-producing cyanobacteria”. In: *BMC Genomics* 18.1 (2017), p. 33.
- Bolleman, J. T., Mungall, C. J., Strozzi, F., Baran, J., Dumontier, M., Bonnal, R. P. J., Buels, R., **Hoehndorf, R.**, Fujisawa, T., Katayama, T., Cock, P. A. J., “FALDO: a semantic standard for describing the location of nucleotide and protein feature annotation”. In: *Journal of Biomedical Semantics* 7.1 (Apr. 2016), pp. 1–12.
- Boudellioua, I., Saidi, R., **Hoehndorf, R.**, Martin, M. J., Solovyev, V., “Prediction of Metabolic Pathway Involvement in Prokaryotic UniProtKB Data by Association Rule Mining”. In: *PLoS ONE* 11.7 (July 2016), pp. 1–16.
- Fisher, H. M., **Hoehndorf, R.**, Bazelato, B. S., Dadras, S. S., King, L. E., Gkoutos, G. V., Sundberg, J. P., Schofield, P. N., “DermO; an ontology for the description of dermatologic disease”. In: *Journal of Biomedical Semantics* 7.1 (June 2016), pp. 1–9.
- Henkel, R., **Hoehndorf, R.**, Kacprowski, T., Knüpfer, C., Liebermeister, W., Waltemath, D., “Notions of similarity for systems biology models”. In: *Briefings in Bioinformatics* (Oct. 2016).
- Hoehndorf, R.**, Alshahrani, M., Gkoutos, G. V., Gosline, G., Groom, Q., Hamann, T., Kattge, J., Oliveira, S. M., Schmidt, M., Sierra, S., Smets, E., Vos, R. A., Weiland, C., “The flora phenotype ontology (FLOPO): tool for integrating morphological traits and phenotypes of vascular plants”. In: *Journal of Biomedical Semantics* 7.1 (Nov. 2016), p. 65.
- Hoehndorf, R.**, Gkoutos, G. V., Schofield, P. N., “Datamining with Ontologies”. In: *Data Mining Techniques for the Life Sciences*. Ed. by Oliviero Carugo and Frank Eisenhaber. New York, NY: Springer New York, May 2016, pp. 385–397.
- Salhi, A., Essack, M., Radovanovic, A., Marchand, B., Bougouffa, S., Antunes, A., Simoes, M. F., Lafi, F. F., Motwalli, O. A., Bokhari, A., Malas, T., Amoudi, S. A., Othum, G., Allam, I., Mineta, K., Gao, X., **Hoehndorf, R.**, C. Archer, J. A., Gojobori, T., Bajic, V. B., “DESM: portal for microbial knowledge exploration systems”. In: *Nucleic Acids Research* 44.D1 (2016), pp. D624–D633.
- Slater, L., Gkoutos, G. V., Schofield, P. N., **Hoehndorf, R.**, “Using AberOWL for fast and scalable reasoning over BioPortal ontologies”. In: *Journal of Biomedical Semantics* 7.1 (Aug. 2016), pp. 1–6.
- Angelis, M. H. “Analysis of mammalian gene function through broad-based phenotypic screens across a consortium of mouse clinics”. In: *Nature Genetics* (July 2015).
- Baran, J., Durgahee, B. S. B., Eilbeck, K., Antezana, E., **Hoehndorf, R.**, Dumontier, M., “GFVO: the Genomic Feature and Variation Ontology”. In: *PeerJ* 3 (May 2015), e933.
- Gkoutos, G. V., **Hoehndorf, R.**, Tsaprouni, L., Schofield, P. N., “Best behaviour? Ontologies and the formal description of animal behaviour”. English. In: *Mammalian Genome* (July 2015), pp. 1–8.
- Gottlieb, A., **Hoehndorf, R.**, Dumontier, M., Altman, B. R., “Ranking Adverse Drug Reactions With Crowdsourcing”. In: *J Med Internet Res* 17.3 (Mar. 2015), e80.

- Hoehndorf, R.**, Gruenberger, M., Gkoutos, G., Schofield, P., “Similarity-based search of model organism, disease and drug effect phenotypes”. In: *Journal of Biomedical Semantics* 6.1 (2015), p. 6.
- Hoehndorf, R.**, Schofield, P. N., Gkoutos, G. V., “Analysis of the human diseasome using phenotype similarity between common, genetic, and infectious diseases”. In: *Scientific Reports* 5 (June 2015), p. 10888.
- Hoehndorf, R.**, Schofield, P. N., Gkoutos, G. V., “The role of ontologies in biological and biomedical research: a functional perspective”. In: *Briefings in Bioinformatics* (Mar. 2015).
- Hoehndorf, R.**, Slater, L., Schofield, P. N., Gkoutos, G. V., “Aber-OWL: a framework for ontology-based data access in biology”. In: *BMC Bioinformatics* 16 (2015), p. 26.
- Oellrich, A., Walls, R., Cannon, E., Cannon, S., Cooper, L., Gardiner, J., Gkoutos, G., Harper, L., He, M., **Hoehndorf, R.**, Jaiswal, P., Kalberer, S., Lloyd, J., Meinke, D., Menda, N., Moore, L., Nelson, R., Pujar, A., Lawrence, C., Huala, E., “An ontology approach to comparative phenomics in plants”. In: *Plant Methods* 11.1 (Feb. 2015). Anika Oellrich and Ramona L Walls contributed equally to this work., p. 10.
- Dumontier, M., Baker, C., Baran, J., Callahan, A., Chepelev, L., Cruz-Toledo, J., Del Rio, N., Duck, G., Furlong, L., Keath, N., Klassen, D., McCusker, J., Queralt-Rosinach, N., Samwald, M., Villanueva-Rosales, N., Wilkinson, M., **Hoehndorf, R.**, “The Semantic-science Integrated Ontology (SIO) for biomedical research and knowledge discovery”. In: *Journal of Biomedical Semantics* 5.1 (2014), p. 14.
- Hoehndorf, R.**, Hancock, J. M., Hardy, N. W., Mallon, A. M., Schofield, P. N., Gkoutos, G. V., “Analyzing gene expression data in mice with the Neuro Behavior Ontology”. In: *Mamm Genome* 25.1-2 (2014), pp. 32–40.
- Hoehndorf, R.**, Haendel, M., Stevens, R., Rebholz-Schuhmann, D., “Thematic series on biomedical ontologies in JBMS: challenges and new directions”. In: *Journal of Biomedical Semantics* 5.1 (2014), p. 15.
- Katayama, T., Wilkinson, M. D., Aoki-Kinoshita, K. F., Kawashima, S., Yamamoto, Y., Yamaguchi, A., Okamoto, S., Kawano, S., Kim, J.-D., Wang, Y., Wu, H., Kano, Y., Ono, H., Bono, H., Kocbek, S., Aerts, J., Akune, Y., Antezana, E., Arakawa, K., Aranda, B., Baran, J., Bolleman, J., Bonnal, R. J., Buttigieg, P. L., Campbell, M. P., Chen, Y.-A., Chiba, H., Cock, P. J., Cohen, K. B., Constantin, A., Duck, G., Dumontier, M., Fujisawa, T., Fujiwara, T., Goto, N., **Hoehndorf, R.**, Igarashi, Y., Itaya, H., Ito, M., Iwasaki, W., Kala, M., Katoda, T., Kim, T., Kokubu, A., Komiyama, Y., Kotera, M., Laibe, C., Lapp, H., Lütteke, T., Marshall, M. S., Mori, T., Mori, H., Morita, M., Murakami, K., Nakao, M., Narimatsu, H., Nishide, H., Nishimura, Y., Nystrom-Persson, J., Ogishima, S., Okamura, Y., Okuda, S., Oshita, K., Packer, N. H., Prins, P., Ranzinger, R., Rocca-Serra, P., Sansone, S., Sawaki, H., Shin, S.-H., Splendiani, A., Strozzi, F., Tadaka, S., Toukach, P., Uchiyama, I., Umezaki, M., Vos, R., Whetzel, P. L., Yamada, I., Yamasaki, C., Yamashita, R., York, W. S., Zmasek, C. M., Kawamoto, S., Takagi, T., “BioHackathon series in 2011 and 2012: penetration of ontology and linked data in life science domains.” In: *Journal of biomedical semantics* 5.1 (2014), p. 5.
- Vos, R., Biserkov, J., Balech, B., Beard, N., Blissett, M., Brenninkmeijer, C., Dooren, T., Eades, D., Gosline, G., Groom, Q., Hamann, T., Hettling, H., **Hoehndorf, R.**, Holleman, A., Hovenkamp, P., Kelbert, P., King, D., Kirkup, D., Lammers, Y., DeMeulemeester, T.,

- Mietchen, D., Miller, J., Mounce, R., Nicolson, N., Page, R., Pawlik, A., Pereira, S., Penev, L., Richards, K., Sautter, G., Shorthouse, D., Tähtinen, M., Weiland, C., Williams, A., Sierra, S., “Enriched biodiversity data as a resource and service”. In: *Biodiversity Data Journal* 2 (2014), e1125.
- Vos, R., Biserkov, J., Balech, B., Beard, N., Blissett, M., Brenninkmeijer, C., Dooren, T., Eades, D., Gosline, G., Groom, Q., Hamann, T., Hettling, H., **Hoehndorf, R.**, Holleman, A., Hovenkamp, P., Kelbert, P., King, D., Kirkup, D., Lammers, Y., DeMeulemeester, T., Mietchen, D., Miller, J., Mounce, R., Nicolson, N., Page, R., Pawlik, A., Pereira, S., Penev, L., Richards, K., Sautter, G., Shorthouse, D., Tähtinen, M., Weiland, C., Williams, A., Sierra, S., “Enriched biodiversity data as a resource and service”. In: *Biodiversity Data Journal* 2 (June 2014), e1125.
- Cook, D., Neal, M., **Hoehndorf, R.**, Gkoutos, G., Gennari, J., “Representing physiological processes and their participants with PhysioMaps”. In: *Journal of Biomedical Semantics* 4.Suppl 1 (2013), S2.
- Dumontier, M., Chepelev, L. L., **Hoehndorf, R.**, “Semantic Systems Biology: Formal Knowledge Representation in Systems Biology for Model Construction, Retrieval, Validation and Discovery”. In: *Systems Biology*. Springer Netherlands, 2013, pp. 355–373.
- Hoehndorf, R.**, Hardy, N. W., Osumi-Sutherland, D., Tweedie, S., Schofield, P. N., Gkoutos, G. V., “Systematic Analysis of Experimental Phenotype Data Reveals Gene Functions”. In: *PLoS ONE* 8.4 (Apr. 2013), e60847.
- Hoehndorf, R.**, Hiebert, T., Hardy, N. W., Schofield, P. N., Gkoutos, G. V., Dumontier, M., “Mouse model phenotypes provide information about human drug targets”. In: *Bioinformatics* (Oct. 2013).
- Hoehndorf, R.**, Schofield, P. N., Gkoutos, G. V., “An integrative, translational approach to understanding rare and orphan genetically based diseases”. In: *Interface Focus* 3.2 (2013).
- Rebholz-Schuhmann, D., Kafkas, S., Kim, J.-H., Li, C., Jimeno Yepes, A., **Hoehndorf, R.**, Backofen, R., Lewin, I., “Evaluating gold standard corpora against gene/protein tagging solutions and lexical resources”. In: *Journal of Biomedical Semantics* 4.1 (Oct. 2013), p. 28.
- Rebholz-Schuhmann, D., Kim, J.-H., Yan, Y., Dixit, A., Friteyre, C., **Hoehndorf, R.**, Backofen, R., Lewin, I., “Evaluation and Cross-Comparison of Lexical Entities of Biological Interest (LexEBI)”. In: *PLoS ONE* 8.10 (Oct. 2013), e75185.
- Gkoutos, G. V., **Hoehndorf, R.**, “Ontology-based cross-species integration and analysis of *Saccharomyces cerevisiae* phenotypes”. In: *Journal of Biomedical Semantics* 3.Suppl 2 (2012), S6.
- Gkoutos, G. V., Schofield, P. N., **Hoehndorf, R.**, “Chapter Four - The Neurobehavior Ontology: An Ontology for Annotation and Integration of Behavior and Behavioral Phenotypes”. In: *Bioinformatics of Behavior: Part 1*. Ed. by Elissa J. Chesler and Melissa A. Haendel. Vol. 103. International Review of Neurobiology. Academic Press, 2012, pp. 69–87.
- Gkoutos, G. V., Schofield, P. N., **Hoehndorf, R.**, “The Units Ontology: a tool for integrating units of measurement in science”. In: *Database* 2012 (2012).
- Hoehndorf, R.**, Dumontier, M., Gkoutos, G. V., “Evaluation of research in biomedical ontologies”. In: *Briefings in Bioinformatics* (Sept. 2012).

- Hoehndorf, R.**, Dumontier, M., Gkoutos, G. V., “Identifying aberrant pathways through integrated analysis of knowledge in pharmacogenomics”. In: *Bioinformatics* 28.16 (Aug. 2012), pp. 2169–2175.
- Hoehndorf, R.**, Harris, M. A., Herre, H., Rustici, G., Gkoutos, G. V., “Semantic integration of physiology phenotypes with an application to the Cellular Phenotype Ontology”. In: *Bioinformatics* 28.13 (2012), pp. 1783–1789.
- Hoehndorf, R.**, Oellrich, A., Rebholz-Schuhmann, D., Schofield, P. N., Gkoutos, G. V., “Linking PharmGKB to phenotype studies and animal models of disease for drug repurposing”. In: *Pacific Symposium on Biocomputing (PSB)* (2012), pp. 388–399.
- Jupp, S., Stevens, R., **Hoehndorf, R.**, “Logical Gene Ontology Annotations (GOAL): exploring gene ontology annotations with OWL”. In: *Journal of Biomedical Semantics* 3.Suppl 1 (2012), S3.
- Loebe, F., Stumpf, F., **Hoehndorf, R.**, Herre, H., “Towards improving phenotype representation in OWL”. In: *Journal of Biomedical Semantics* 3.Suppl 2 (2012), S5.
- Oellrich, A., Gkoutos, G. V., **Hoehndorf, R.**, Rebholz-Schuhmann, D., “Quantitative comparison of mapping methods between Human and Mammalian Phenotype Ontology”. In: *Journal of Biomedical Semantics* 3.Suppl 2 (2012), S1.
- Rebholz-Schuhmann, D., Oellrich, A., **Hoehndorf, R.**, “Text-mining solutions for biomedical research: enabling integrative biology”. In: *Nature Reviews Genetics* 13.12 (Dec. 2012), pp. 829–839.
- Schofield, P. N., **Hoehndorf, R.**, Gkoutos, G. V., “Mouse genetic and phenotypic resources for human genetics”. In: *Human Mutation* (2012).
- Wimalaratne, S. M., Grenon, P., **Hoehndorf, R.**, Gkoutos, G. V., Bono, B., “An infrastructure for ontology-based information systems in biomedicine: RICORDO case study”. In: *Bioinformatics* 28.3 (2012), pp. 448–450.
- Adams, N., **Hoehndorf, R.**, Gkoutos, G. V., Hansen, G., Hennig, C., “PIDO: The Primary Immunodeficiency Disease Ontology”. In: *Bioinformatics* (Sept. 2011).
- Bono, B., **Hoehndorf, R.**, Wimalaratne, S., Gkoutos, G. V., Grenon, P., “The RICORDO approach to semantic interoperability for biomedical data and models: strategy, standards and solutions.” In: *BMC Research Notes* 4.1 (2011), p. 313.
- Herre, H., **Hoehndorf, R.**, Kelso, J., Loebe, F., Schulz, S., “OBML - Ontologies in Biomedicine and Life Sciences”. In: *Journal of Biomedical Semantics* 2.Suppl 4 (Aug. 2011), p. I1.
- Hoehndorf, R.**, Batchelor, C., Bittner, T., Dumontier, M., Eilbeck, K., Knight, R., Mungall, C. J., Richardson, J. S., Stombaugh, J., Westhof, E., Zirbel, C. L., Leontis, N. B., “The RNA Ontology (RNAO): An Ontology for Integrating RNA Sequence and Structure Data”. In: *Applied Ontology* 6.1 (Jan. 2011), pp. 53–89.
- Hoehndorf, R.**, Dumontier, M., Gennari, J. H., Wimalaratne, S., Bono, B., Cook, D. L., Gkoutos, G. V., “Integrating systems biology models and biomedical ontologies”. In: *BMC Systems Biology* 5.1 (Aug. 2011), pp. 124+.
- Hoehndorf, R.**, Dumontier, M., Oellrich, A., Rebholz-Schuhmann, D., Schofield, P. N., Gkoutos, G. V., “Interoperability between biomedical ontologies through relation expansion, upper-level ontologies and automatic reasoning”. In: *PLOS ONE* 6.7 (July 2011), e22006.



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- Hoehndorf, R.**, Ngonga Ngomo, A.-C., Pyysalo, S., Ohta, T., Oellrich, A., Rebholz-Schuhmann, D., “Ontology design patterns to disambiguate relations between genes and gene products in GENIA”. In: *Journal of Biomedical Semantics* 2.Suppl 5 (2011), S1.
- Hoehndorf, R.**, Schofield, P. N., Gkoutos, G. V., “PhenomeNET: a whole-phenome approach to disease gene discovery”. In: *Nucleic Acids Research* 39.18 (July 2011), e119.
- Schofield, P. N., Sundberg, J. P., **Hoehndorf, R.**, Gkoutos, G. V., “New approaches to the representation and analysis of phenotype knowledge in human diseases and their animal models”. In: *Briefings in Functional Genomics* 10.5 (2011), pp. 258–265.
- Hoehndorf, R.**, Ngonga Ngomo, A.-C., Dannemann, M., Kelso, J., “Statistical tests for associations between two directed acyclic graphs.” In: *PloS ONE* 5.6 (June 2010), e10996+.
- Hoehndorf, R.**, Ngonga Ngomo, A.-C., Kelso, J., “Applying the functional abnormality ontology pattern to anatomical functions.” In: *Journal of biomedical semantics* 1.1 (Mar. 2010), pp. 4+.
- Hoehndorf, R.**, Oellrich, A., Dumontier, M., Kelso, J., Rebholz-Schuhmann, D., Herre, H., “Relations as patterns: bridging the gap between OBO and OWL.” In: *BMC Bioinformatics* 11.1 (Aug. 2010), pp. 441+.
- Hoehndorf, R.**, Oellrich, A., Rebholz-Schuhmann, D., “Interoperability between phenotype and anatomy ontologies”. In: *Bioinformatics* 26.24 (Oct. 2010), pp. 3112–3118.
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- Hoehndorf, R.**, Kelso, J., Herre, H., “The ontology of biological sequences.” In: *BMC Bioinformatics* 10.1 (Nov. 2009), pp. 377+.
- Hoehndorf, R.**, Loebe, F., Poli, R., Kelso, J., Herre, H., “GFO-Bio: A biomedical core ontology”. In: *Applied Ontology* 3.4 (Dec. 2008), pp. 219–227.
- Hoehndorf, R.**, Loebe, F., Kelso, J., Herre, H., “Representing default knowledge in biomedical ontologies: Application to the integration of anatomy and phenotype ontologies”. In: *BMC Bioinformatics* 8.1 (Oct. 2007).
- Burek, P., **Hoehndorf, R.**, Loebe, F., Visagie, J., Herre, H., Kelso, J., “A top-level ontology of functions and its application in the Open Biomedical Ontologies.” In: *Bioinformatics* 22.14 (July 2006), e66–e73.

#### INTERNATIONAL CONFERENCES AND WORKSHOPS

- García, M. A. R., Gkoutos, G. V., Schofield, P. N., **Hoehndorf, R.**, “Integrating phenotype ontologies with PhenomeNET”. In: *Proceedings of Ontology Matching Workshop 2016*. Oct. 2016.
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- Slater, L., Gkoutos, G. V., Schofield, P. N., **Hoehndorf, R.**, “To MIREOT or not to MIREOT? A case study of the impact of using MIREOT in the Experimental Factor Ontology (EFO)”. In: *International Conference on Biomedical Ontology and BioCreative (ICBO BioCreative 2016)*. Proceedings of the Joint International Conference on Biological Ontology and BioCreative (2016). ICBO and BioCreative. ICBO and BioCreative, Aug. 2016.
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- Hoehndorf, R.**, Ngonga Ngomo, A.-C., Herre, H., “Developing Consistent and Modular Software Models with Ontologies”. In: *SoMeT*. Sept. 2009, pp. 399–412.
- Hoehndorf, R.**, Ngonga Ngomo, A.-C., Kelso, J., “The application of an ontology design pattern for functional abnormalities to phenotype ontologies and the extraction of an ontology of anatomical functions”. In: *Proceedings of the The 3rd International Symposium on Languages in Biology and Medicine*. Oct. 2009.
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- Hoehndorf, R.**, Ngonga Ngomo, A.-C., Dannemann, M., Kelso, J., “From Terms to Categories: Testing the Significance of Co-occurrences between Ontological Categories”.

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#### OTHER REFEREED PUBLICATIONS

- Hoehndorf, R.**, Gkoutos, G. V., Schofield, P. N., “Datamining with Ontologies”. In: *Data Mining Techniques for the Life Sciences*. Ed. by Oliviero Carugo and Frank Eisenhaber. New York, NY: Springer New York, May 2016, pp. 385–397.
- Schofield, P. N., **Hoehndorf, R.**, Smith, C. L., Eppig, J. T., Gkoutos, G. V., “Kaufmann’s Atlas of Mouse Development Supplement”. In: Amsterdam: Elsevier Academic Press, 2015. Chap. The Informatics of Developmental Phenotypes, pp. 307–318.
- Hoehndorf, R.** “What is an upper-level ontology?” In: *Ontogenesis blog*. Feb. 2010.
- Kelso, J., **Hoehndorf, R.**, Prüfer, K., “Ontologies in Biology”. In: *Theory and Applications of Ontology: Computer Applications*. Ed. by Roberto Poli, Michael Healy, and Achilles Kameas. Springer Netherlands, July 2010, pp. 347–371.
- Hoehndorf, R.** “Basic considerations for improving interoperability between ontology-based biological information systems”. PhD thesis. University of Leipzig, June 2009.
- Herre, H., Heller, B., Burek, P., **Hoehndorf, R.**, Loebe, F., Michalek, H., *General Formal Ontology (GFO) - A Foundational Ontology Integrating Objects and Processes [Version 1.0]*. Tech. rep. 8. Leipzig: Research Group Ontologies in Medicine, Institute of Medical Informatics, Statistics and Epidemiology, University of Leipzig, July 2006.
- Hoehndorf, R.** “Situoid Theory - An ontological approach to Situation Theory”. MA thesis. Institute for Informatics, University of Leipzig, Mar. 2005.

## Talks and presentations

#### INVITED TALKS

- 2016 *Ontologies of phenotypes and their applications in personalized medicine*. CS Seminar, University of Murcia.
- 2016 *Mobilizing and integrating phenotype data*. Biodiversity-Informatics Seminar, Senckenberg Institute for Biodiversity.
- 2013 *From ontologies to translational medicine*. CS Seminar, University of Rostock.

- 2012 *My ontology is better than your! Building and evaluating ontologies for integrative research.* Keynote, Bio-Ontologies Meeting (co-located with ISMB 2012).
- 2012 *From ontologies to translational medicine.* Invited External Speaker, European Bioinformatics Institute.
- 2012 *Phenotype informatics and translational research.* IMISE Kolloquium, Institute for Medical Informatics, Statistics and Epidemiology, University of Leipzig.
- 2012 *Ontologies for integrating and analyzing phenotypes.* Department of Computer Science, University of Birmingham.
- 2011 *Exploring phenotype data for information about rare diseases.* Department of Computer Science, University of Capetown.
- 2011 *Ontologies for representing, integrating and analyzing phenotypes.* AIC Seminar, Stanford Research Institute.
- 2011 *Towards integration of biomedical ontologies and systems biology.* Computational Modeling in Biology Network (COMBINE).
- 2011 *Integrating systems biology and biomedical ontologies.* Workshop on Modelling interoperability, European Bioinformatics Institute.
- 2010 *Interoperability between biomedical ontologies.* Knowledge Representation and Knowledge Management Research Group, University Mannheim.
- 2010 *The ontology of biomedical sequences.* IMISE Kolloquium, Institute for Medical Informatics, Statistics and Epidemiology, University of Leipzig.
- 2010 *Perspectives for the ontology of phenotypes.* Ontology Interest Group, European Bioinformatics Institute.
- 2010 *An introduction to formal ontology.* Ontology Interest Group, European Bioinformatics Institute.
- 2008 *Towards interoperability between anatomy and phenotype ontologies.* Dagstuhl seminar *Ontologies and Text Mining for Life Sciences : Current Status and Future Perspectives.*
- 2007 *Interoperability, non-monotonicity and core ontologies.* Dagstuhl seminar *Towards Interoperability of Biomedical Ontologies.*

## Professional memberships

- 2006–2017 International Society of Computational Biology (ISCB)
- 2009–2013 International Organization for Ontology and its Applications (IAOA)
- 2009–2012
- sub-chair of education committee for Doctoral Consortia
- 2008–2014 Nicolai Hartmann Society
- 2007–2012 Association for Computing Machinery (ACM)

- Member of Special Interest Group “Artificial Intelligence”

## Professional services

### EDITORIAL WORK

2016–now	Member of Editorial Board: <i>Data Science</i>
2012–now	Associate Editor: <i>Journal of Biomedical Semantics</i>
2012	Editor: Special Issue on Ontologies in Biomedicine and Life Sciences in <i>Journal of Biomedical Semantics</i>
2011	Editor: Special Issue on Ontologies in Biomedicine and Life Sciences in <i>Journal of Biomedical Semantics</i>
2010	Editor: Special Issue on Ontologies in Biomedicine and Life Sciences in <i>Journal of Biomedical Semantics</i>

### REVIEWING FOR SCIENTIFIC JOURNALS

Since 2007, I have reviewed manuscripts for

- *Bioinformatics*
- *Briefings in Bioinformatics*
- *Journal of Biomedical Informatics*
- *PLoS ONE*
- *Database*
- *Journal of Biomedical Semantics*
- *BMC Bioinformatics*
- *Scientific Reports*
- *Applied Ontology*
- *Human Mutation*
- *Genome Medicine*
- *Journal of Web Semantics*
- *BMC Complementary and Alternative Medicine*
- *International Journal on Semantic Web and Information Systems*
- *Central European Journal of Computer Science*

## REVIEWING FOR FUNDING ORGANIZATIONS

I have reviewed research grant applications for

- German Federal Ministry of Education and Research (BMBF)
- German Research Foundation (DFG)
- National Research Fund Luxembourg (FNR)
- Dr Hadwen Trust
- European Commission Horizon 2020: ERA-Net for Research Programmes on Rare Diseases

and have been a panel member for grant programs at

- German Federal Ministry of Education and Research (BMBF)

## CONFERENCE ORGANIZATION

- 2017 *PC member* of the Function SIG 2017
- 2017 *PC member* and *Co-organizer* of the Bio-Ontologies SIG 2017
- 2017 *PC member* of the International Semantic Web Conference (ISWC), 2017
- 2017 *PC Member* for International Workshop on Biological Data Mining and Knowledge Discovery (BioKDD 2017)
- 2017 *PC Member* for 25th Conference on Intelligent Systems for Molecular Biology (ISMB) and the 16th European Conference on Computational Biology
- 2017 *PC member* of Medinfo 2017
- 2017 *PC member* of the Extended Semantic Web Conference (ESWC), 2017
- 2016 *PC Member* for Semantic Web Applications and Tools in Life Sciences (SWAT4LS) 2016
- 2016 *PC member* for the Workshop on Ontologies and Databases in Life Sciences 2016 (ODLS)
- 2016 *PC Chair* for the International Conference on Biological Ontology 2016 (ICBO)
- 2016 *PC member* for the Bio-Ontologies SIG 2016
- 2016 *PC member* for the 15th International Semantic Web Conference (ISWC)
- 2016 *PC member* of the 15th European Conference on Computational Biology (ECCB)
- 2016 *PC Member* for 24nd Annual International Conference on Intelligent Systems for Molecular Biology (ISMB)
- 2016 *PC Member* for Know@LOD 2016
- 2016 *PC Member* for FOIS 2016: 9th International Conference on Formal Ontologies in Information Systems
- 2015 *PC Member* for Semantic Web Applications and Tools in Life Sciences (SWAT4LS) 2015
- 2015 *PC member* for the 14th International Semantic Web Conference (ISWC)
- 2015 *PC member* for Bio-Ontologies SIG 2015
- 2015 *PC Member* for 23nd Annual International Conference on Intelligent Systems for Molecular Biology (ISMB)
- 2015 *PC Member* for 15th World Congress on Health and Biomedical Informatics (MEDINFO'15)
- 2015 *PC Member* for 4th Workshop on Knowledge Discovery and Data Mining Meets Linked Open Data (Know@LOD)

2015 *PC Member* for 29th AAI Conference on Artificial Intelligence (AAAI-2015)

2014 *PC Member* for Ontologies and Data in the Life Sciences (ODLS) 2014

2014 *PC Member* for Semantic Web Applications and Tools in Life Sciences (SWAT4LS) 2014

2014 *PC Member* for Conference and Labs of the Evaluation Forum (CLEF) 2014

2014 *Reviewer* for 22nd Annual International Conference on Intelligent Systems for Molecular Biology (ISMB)

2014 *PC member* of Bio-Ontologies SIG 2014

2014 *PC member* of the 13th European Conference on Computational Biology (ECCB)

2014 *PC member* of the 8th International Workshop on Modular Ontologies (WoMO)

2014 *Workshop chair* of FOIS 2014: 8th International Conference on Formal Ontologies in Information Systems

2014 *PC member* of CSHALS2014: Conference on Semantics in Healthcare and Life Sciences

2014 *PC member* of the International Symposium on Inconsistency Robustness 2014

2013 *PC member* of the 7th International Workshop on Modular Ontologies (WoMO)

2013 *PC member* of the 12th International Semantic Web Conference (ISWC)

2013 *Program chair* of the Fourth International Conference on Biomedical Ontologies (ICBO)

2012 *PC member* of the Third Workshop on the use of Semantic Web Technology for Mobile and Ubiquitous Applications (SWUMA)

2012 *PC member* of Bio-Ontologies SIG 2012

2012 *PC member* of the 11th European Conference on Computational Biology (ECCB)

2012 *Chair* of the 4th Workshop on Ontologies in Biology and Life Sciences (OBML)

2012 *PC member* of the 6th International Workshop on Modular Ontologies (WoMO)

2012 *PC member* of the International Symposium on Inconsistency Robustness

2012 *PC member* of Intelligent Systems in Molecular Biology (ISMB) 2012

2012 *PC member* of FOIS 2012: 7th International Conference on Formal Ontology in Information Systems

2012 *PC member* of ICBO 2012: 3rd International Conference on Biomedical Ontologies

2011 *Chair* of the 3rd Workshop on Ontologies in Biology and Life Sciences (OBML)

2011 *PC member* of the International Symposium on Inconsistency Robustness

2011 *PC member* of the Workshop on Working with Multiple Biomedical Ontologies (WoMBO)

2011 *PC member* of the 5th International Workshop on Modular Ontologies (WoMO)

2011 *PC member* of OWL: Experiences and Directions (OWLED) 2011

2011 *PC member* of the 2nd International Conference on Biomedical Ontologies (ICBO)

2010 *Program Chair* of the 2nd Workshop on Ontologies in Biology and Life Sciences (OBML)

2010 *PC member* of the NETTAB 2010 Workshop on Biological Wikis

2010 *PC member* of the Extended Semantic Web Conference (ESWC), 2010

2010 *PC member* of Intelligent Systems in Molecular Biology (ISMB) 2010

2009 *Reviewer* for the 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

2009 *PC member* of Medical Informatics Europe (MIE), 2009

2008 *PC member* of Intelligent Systems in Molecular Biology (ISMB) 2008

2008 *PC member* of Medical Informatics Europe (MIE), 2008

2007 *PC member* of Intelligent Systems in Molecular Biology (ISMB) and European Conference on Computational Biology (ECCB), 2007



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