

Dr. Nicolai Erbs

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Summary of qualifications

- Six years of experience in interdisciplinary research with a focus on natural language processing.
- Experience in hands-on processing, representation, and manipulation of unstructured text.
- Well-versed in effectively presenting to both expert and novice audiences.
- Proficiency in applied machine learning with a particular focus on text classification.
- Experience in leading and working in small to medium-sized open-source software projects.
- Experience with highly-innovative work environments in startups.

Work experience

- Aug 2015–
present **Founder of privalino.de**, startup for protecting children while communicating in the Internet by analyzing chat transcripts, responsibilities: *Software development, marketing, and business strategy.*
- May 2016–
July 2016 **Entrepreneur in residence with Worpcloud Inc. at Santander Incubator for artificial intelligence and software architecture'**, Liverpool, England, responsibilities: *Ideation and agile development of prototypes.*
- Feb 2015–
Mar 2016 **Senior researcher in the research group "Ubiquitous Knowledge Processing"**, Technische Universität Darmstadt, Germany, responsibilities: *Representation of the research group, external industry projects, project leading.*
- Sep 2015–
Mar 2016 **Freelance software consultant**, Main client: semafora systems GmbH, Bensheim, responsibilities: *Presentation, development, and chief engineer.*
- April 2015–
July 2015 **Guest lecturer for artificial intelligence, knowledge bases and machine learning**, University of Duisburg-Essen, Germany, responsibilities: *Holding two lectures and management of tutors..*
- May 2010–
Feb 2015 **Doctoral researcher in the research group "Ubiquitous Knowledge Processing"**, Technische Universität Darmstadt, Germany
- Wikulu – Self-organizing wikis, responsibilities: *software development, dissemination, and project lead*
 - open window – Industry project for creating learning tools for MOOCs, responsibilities: *project lead and prototype development*
 - DKPro TC – Machine learning framework for text classification, responsibilities: *software architecture, continuous development*
 - Teaching, responsibilities: *holding lectures and exercise classes, and supervision of tutors*

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- Oct 2008– **Software developer for Java** at Logica Space (now: CGI), Darmstadt, Germany
- May 2009
- Knowledge management, responsibilities: *development, migration, and maintenance of internal knowledge management systems*
 - DARC – Storing and analyzation of telemetric data of satellites, responsibilities: *development of analyzation tools and user interfaces*
- Jun 2004 **Web developer at the Centre for Security, Communications and Network Research**, University of Plymouth, U.K., responsibilities: *development of a web-based platform for a conference.*

Education

- May 2010– **PhD (Dr.-Ing.) in Computer Science**, UKP Lab, Technische Universität Darmstadt, Germany, *Grade: Magna cum laude*, PhD project: *Automatic text structuring through natural language processing*, Supervisors: Prof. Iryna Gurevych, Prof. Torsten Zesch, Prof. Eneko Agirre.
- Feb 2012– **Visiting scientist in the research group “IXA”**, University of the Basque Country, Jun 2012 Research project: *Named entity disambiguation*, Supervisors: Prof. Eneko Agirre.
- 2007–2010 **Master of Science, Engineering Physics**, Technische Universität Darmstadt, Germany, *Grade: Good*, Master Thesis: *Extracting the learner’s opinions - Bootstrapping extraction patterns for sentiment analysis.*, Supervisors: Prof. Iryna Gurevych.
- Jun 2006– **Exchange semester, Physics**, Pontifícia Universidade Católica, Brasil, Project Feb 2007 work on creating optical fibres for cancer research.
- 2004–2007 **Bachelor of Science, Physics**, Technische Universität Darmstadt, Germany, *Grade: Good*, Master Thesis: *Bestimmung der Pion-Zerfallskonstante und des chiralen Kondensats aus der Struktur des Quark-Propagators*, Supervisors: Prof. Christian Fischer.
- 2003–2004 **Distance study, Physics**, *University of Kaiserslautern.*
Early admission for pupils
- 2002–2004 **Abitur**, Alfred-Delp-Schule, Dieburg, *Grade: 1.6.*

Grants and stipendiaries

- Jan 2016 **Startup Contest**, 3rd place of 70 startups with privalino.de. Grant of 1,000 EUR for future development, TU Darmstadt.
- 2013–2015 **Software Campus Grant**, Research grant of EUR 100,000 for leading an industry project., Federal Ministry of Education and Research.
- 2010–present **Stipendiary as member of project Wikulu**, Klaus-Tschira-Foundation.

Technical skills

- Programming languages I am a Java software developer with more than 10 years of experience. In the past, I have also worked with other languages, i.e. Python, C#, Fortran, Perl, R and Mathematica. These skills can easily be re-activated, if necessary. Recently, I started developing mobile applications.

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Frameworks I am very experienced with UIMA (7 years of experience), Maven, and Artifactory. I and formats have experience with JSON and developing web services with REST, Apache Tomcat and JBoss.

Development In my daily work, I confidently use Unix, OS X, Windows, Eclipse, Maven, SVN, tools GitHub, MySQL, Lucene, and Apache Solr. During my studies I learned to easily adjust to new development tools.

Open source software development (selected)

My expertise ranges from user software to large software systems with more than 180,000 lines of code.¹ I am an active contributor to several open source projects:

DKPro Core **Leading developer team.** A collection of software components covering a wide range of tasks for natural language processing.

DKPro Similarity **Project manager.** A collection of word and text similarity measures, which I recently published on Maven Central.

DKPro TC **Developer from initial state.** DKPro TC is a UIMA-based text classification framework. It is intended to alleviate supervised machine learning experiments with any kind of textual data.

Free your stuff **Project owner.** A community project to exchange not needed stuff with neighbors. It consists of an Android application and the corresponding server infrastructure.

Finance tools **Project owner.** A collection of finance tools to organize and optimize bank accounts.

Publications (selected)

Nicolai Erbs, Iryna Gurevych, and Marc Rittberger. Bringing Order to Digital Libraries: From Keyphrase Extraction to Index Term Assignment. *D-Lib Magazine*, 19(9/10):1–16, 2013.

Nicolai Erbs, Iryna Gurevych, and Torsten Zesch. Hierarchy Identification for Automatically Generating Table-of-Contents. In *Proceedings of the International Conference on Recent Advances in Natural Language Processing*, pages 252–260, 2013.

Nicolai Erbs, Iryna Gurevych, and Torsten Zesch. Sense and similarity: A study of sense-level similarity measures. In *In Proceedings of the 3rd Joint Conference on Lexical and Computational Semantics (*SEM 2014)*, page (to appear), August 2014.

Nicolai Erbs, Torsten Zesch, and Iryna Gurevych. Link Discovery: A Comprehensive Analysis. In *Proceedings of the 5th IEEE International Conference on Semantic Computing (IEEE-ICSC)*, pages 83–86, Palo Alto, CA, USA, July 2011.

¹A full list of my open source software contributions is given here: <https://github.com/nicolaierbs>

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Teaching & thesis co-Supervision (selected)

- 2016 **Teaching: Lecture**, *Foundations of Language Technology and Grundlagen Intelligenter System*, Technische Universität Darmstadt, Germany.
- 2015 **Teaching: Lecture**, *Foundations Artificial Intelligence*, Universität Duisburg-Essen, Germany.
Teaching: Lecture, *Knowledge-based Systems*, Universität Duisburg-Essen, Germany.
- 2014 **Thesis Co-Supervisor**, *Tell me a story and I tell you who you are*, David Hoppe, Master Thesis.
- 2013 **Teaching: Practice Class**, *Natural Language Processing and eLearning*, Technische Universität Darmstadt, Germany, together with Lisa Beinborn.
- 2011 **Teaching: Practice Class**, *Foundations of Language Technology and Grundlagen Intelligenter System*, Technische Universität Darmstadt, Germany.
- 2010 **Teaching: Practice Class**, *Foundations of Language Technology*, Technische Universität Darmstadt, Germany.
Thesis Co-Supervisor, *Do overview snippets improve information search in the World Wide Web?*, Christopher Schwarz, Bachelor Thesis.

Languages

German	<i>native language</i>
English	C2 <i>research language</i>
Spanish	B2 <i>working experience in Spain</i>
Latin	B1 <i>5 years in school</i>
Portuguese	A2 <i>exchange semester in Brazil</i>
French	A1 <i>2 years in school</i>

Language levels are determined according to the European Reference Framework.²

Extra-curricular activities

- Sport **Competitive volleyball player**, up to 2. Bundesliga (2nd national division) with TuS Kriftel, currently Oberliga with DSW Darmstadt.
(Beach-) Volleyball instructor, SSV Brensbach, DSW Darmstadt, Beach Academy (2004– present).
Rock climbing, Certified by German Alpine Association.
- Volunteer work **Organizing international volleyball match**, U18 girls teams, Germany against France in Darmstadt (Dec 2013), managing 60 volunteers.

²<http://www.coe.int/lang-CEFR>.

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