



## AIMS OF THE WORKSHOP

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The current World-Wide Web enables an easy, instant access to a vast amount of online information. However, the content in the Web is typically for human consumption, and is not tailored for machine processing. The Semantic Web is hence intended to establish a machine-understandable Web, and is currently also used in many other domains and not only in the Web. The World Wide Web Consortium (W3C) has developed a number of standards around this vision. Among them is the Resource Description Framework (RDF), which is used as the data model of the Semantic Web. The W3C has also defined SPARQL as the RDF query language, RIF as the rule language, and the ontology languages RDFS and OWL to describe schemas of RDF. The usage of common ontologies increases interoperability between heterogeneous data sets, and the proprietary ontologies with the additional abstraction layer facilitate the integration of these data sets. Therefore, we can argue that the Semantic Web is ideally designed to work in heterogeneous Big Data environments.

We define Semantic Big Data as the intersection of Semantic Web data and Big Data. There are masses of Semantic Web data freely available to the public - thanks to the efforts of the [linked data initiative](#). Many of these freely available Semantic Web datasets are accessible via SPARQL query servers called SPARQL endpoints. Everyone can submit SPARQL queries to SPARQL endpoints via a standardized protocol, where the queries are processed on the datasets of the SPARQL endpoints and the query results are sent back in a standardized format. Hence, not only Semantic Big Data is freely available, but also distributed execution environments for Semantic Big Data are freely accessible. This makes the Semantic Web an ideal playground for Big Data research.

The goal of this workshop is to bring together academic researchers and industry practitioners to address the challenges and report and exchange the research findings in Semantic Big Data, including new approaches, techniques and applications, make substantial theoretical and empirical contributions to, and significantly advance the state of the art of Semantic Big Data.

## CATEGORIES OF PAPERS

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The workshop solicits papers of different categories:

- **Research Papers** propose new approaches, theories or techniques related to Semantic Big Data including new data structures, algorithms and whole

systems. They should make substantial theoretical and empirical contributions to the research field.

- **Experiments and Analysis Papers** focus on the experimental evaluation of existing approaches including data structures and algorithms for Semantic Big Data and bring new insights through the analysis of these experiments. Results of Experiments and Analysis Papers can be, for example, showing benefits of well-known approaches in new settings and environments, opening new research problems by demonstrating unexpected behavior or phenomena, or comparing a set of traditional approaches in an experimental survey.
- **Application Papers** report practical experiences on applications of Semantic Big Data. Application Papers might describe how to apply Semantic Web technologies to specific application domains with big data demands like social networks, web search, e-business, collaborative environments, e-learning, medical informatics, bioinformatics and geographic information system. Application Papers might describe applications using linked data in a new way.
- **Vision Papers** identify emerging new or future research issues and directions, and describe new research visions having demands for Semantic Big Data. The new visions will potentially have great impacts on society.
- **Demo Papers** deal with innovative systems and applications for Semantic Big Data. These papers describe a showcase of the proposed system/application, but may also explain the novelty of the system's architecture. We are especially interested in demonstrations having a WOW-effect.

For all categories (except for demo papers), we accept two different types of papers: Short and Full papers. The length of full papers cannot exceed 6 pages. The length of all other papers (i.e., short and demo papers) cannot exceed 4 pages. Accepted full and short papers will be presented in oral presentations. Demo papers will be presented as part of a combined demo and poster session. All accepted full and short papers will also be presented as posters in the combined demo and poster session in order to increase interactivity and discussion with the audience.

## TOPICS OF INTEREST

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We welcome papers on the following topics:

- Semantic Data Management, Query Processing and Optimization in
  - Big Data
  - Cloud Computing
  - Internet of Things

- Graph Databases
- Federations
- Spatial and Spatio-Temporal Data
- Evaluation strategies for Semantic Big Data of Rule-based Languages like RIF and SWRL
- Ontology-based Approaches for Modeling, Mapping, Evolution and Real-world ontologies in the context of Semantic Big Data
- Reasoning Approaches (Real-World Applications, Efficient Algorithms) especially designed for Semantic Big Data environments
- Linked Data
  - Integration of Heterogeneous Linked Data (linking algorithms, heuristics, identity resolution, schema matching, clustering)
  - Real-World Applications (data browsers, search engines, marketplaces, aggregators, indexes, enterprise applications using LOD, LOD applications for social sciences, digital humanities, life-sciences)
  - Statistics and Visualizations
  - Quality Assessment (evaluating the quality and trustworthiness, tracking the provenance, profiling and change tracking)
  - Cleansing (data fusion, truth discovery, conflict resolution, crowdsourcing)
  - Ranking Techniques
  - Provenance
  - Mining and Consuming Linked Data (large-scale derivation of implicit knowledge, using LOD as background knowledge in data mining)
- Semantic Web stream processing (Dynamic Data, Temporal Semantics)
- Semantic Internet of Things
- Semantic Smart Homes/Companies/Cities
- Performance, Evaluation and Benchmarking of Semantic Web Technologies, Applications and Databases
- Semantic Web Services
- Semantic Big Data Archives
  - Efficient Archiving and Preservation Techniques
  - Evolution Representation
  - Compression Approaches
  - Querying Techniques
- Semantic Big Data on Emergent Hardware Technologies
  - FPGA
  - GPU
  - SSD
  - Main-Memory Databases
- Semantic Wikis
  - Verification of Content
  - Bias in Content/Gaps of Knowledge
  - Detection of Incorrect or Low-Quality Content, Fake News
  - Collaborative Content Creation and Editor Decisions
  - Dynamics of Discussion, of Collaborative Content Creation and of Reuse
  - Detection of Hidden Knowledge
  - Ontology Learning

## WORKSHOP CHAIRS

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- Sven Groppe, University of Lübeck, Germany
- Le Gruenwald, University of Oklahoma, USA
- Valentina Presutti, University of Bologna, Italy

## PROGRAM COMMITTEE

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- Mithun Balakrishna, Lymba Corporation, USA
- Paolo Ceravolo, Università degli Studi di Milano, Italy
- Julian Dolby, IBM Research, USA
- Vadim Ermolayev, Zaporizhzhia National University, Ukraine
- Katja Gilly de La Sierra-Llamazares, Miguel Hernandez University, Spain
- Jinghua Groppe, University of Lübeck, Germany
- Ekaterini Ioannou, Tilburg University
- Felix Kuhr, University of Lübeck, Germany
- Isaac Lera, Universitat de les Illes Balears, Spain
- Xiang Lian, Kent State University, USA
- Qing Liu, Data61, CSIRO, Australia
- Ioana Manolescu, INRIA and Ecole Polytechnique, France
- Daniel Miranker, The University of Texas at Austin, USA
- Grażyna Paliwoda-Pękosz, Cracow University of Economics, Poland
- Alfredo Pulvirenti, University of Catania, Italy
- Praveen Rao, University of Missouri, USA
- Arjun Satish, Confluent Inc., USA
- Omair Shafiq, Carleton University, Canada
- Marta Tatu, Lymba Corporation, USA
- Konstantinos Tserpes, Harokopio University of Athens, Greece
- Dimitrios Tsoumakos, Department of Informatics, Ionian University, Greece
- Benjamin Warnke, University of Lübeck, Germany
- Robert Wrembel, Poznan University of Technology, Poland
- Xiang Zhao, National University of Defense Technology, China
- Dimitrios Zisis, University of the Aegean, Greece

## IMPORTANT DATES

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<b>Submission (extended):</b>	March 4, 2020
<b>Notification:</b>	March 31, 2020
<b>Workshop:</b>	June 19, 2020

## SUBMISSION

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Authors are invited to submit original, unpublished research papers that are not being considered for publication in any other forum.

Manuscripts should be formatted using the camera-ready templates in the ACM proceedings double-column format according to the "sigconf" proceedings template. Long papers cannot exceed 6 pages in length. Short papers and demo papers cannot exceed 4 pages in length.

Accepted papers will be published online in the ACM digital library. We describe manuscript preparation and submission procedure at <http://www.ifis.uni-luebeck.de/~groppe/sbd/submit>