

University Academic Curriculum Vitae

Personal information

Name: Benjamin Cogrel
 Place and –date of birth: Saint-Nazaire (France), 17/10/1985
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Education since leaving school

- 2009, Computer Engineer, National Engineering School of Brest, France.
- 2009, Research Master in Computer Science, National Engineering School of Brest – University of Rennes I, France.
- 2013, PhD in Computer Science, "Contextual selection of continuous services applied to ambient robotics", University of Paris-Est.

Present appointment

- Research assistant
- Since July 2014
- Foundations of Data and Process Management (FDPM) project (July 2018 –), Optique EU project (July 2014 – October 2016), Ontology-Based Data Access for NoSQL database (OBDAM) RTD project (July 2016 – November 2017), Ontology-based analysis of temporal and streaming data (OBATS) RTD project (July 2017 – June 2019)
- Faculty of Computer Science, Free University of Bozen-Bolzano, Italy
- Research on enabling Ontology-Based Data Access (OBDA) over non-relational and heterogeneous data sources
- Main architect of the third major version of the Ontop OBDA platform which aims in particular at fully supporting the SPARQL OPTIONAL and aggregate operators, and at being extensible to non-relational data sources.

Professional experience

From / to	Job title	Name of academic Institution	Academic level	responsibilities
01 Feb.2009 to 30 June 2009	Assistant	National Engineering School of Brest, European Center for Virtual Reality	Master student	Intern
01 Nov.2009 to 30 June 2010	Software engineer	University of Paris-Est Créteil, Images Signal and Intelligent Systems Laboratory	PhD student	Developer in the Multipol EU project
Feb. - May 2010	Adjunct Teaching assistant	University of Paris-Est Créteil, Faculty of Science	PhD student	Teaching 47 hours

01 Sep. 2010 to 31 Aug. 2012	Teaching assistant	University of Paris-Est Créteil, Network and Telecommunication department	PhD student	Teaching 96 hours per year
01 July 2014 – 30 June 2019	Research assistant	Free University of Bozen-Bolzano, Faculty of Computer Science	Post-Doc	Research on OBDA and development of the Ontop platform
08 March – 31 May 2018	Teaching assistant	Free University of Bozen-Bolzano, Faculty of Computer Science	Post-Doc	Teaching 30 hours

Experience in academic teaching

- *Requêter une base de données à un niveau conceptuel avec Ontop*, Tutorial at Journées Ontologies en Sciences Humaines et Sociales, Tours, France, Master level, November 2015, 2 hours.
- *OBDA with Ontop*, Erasmus Mundus Joint Master Degree Programme in Information Technologies for Business Intelligence (IT4BI), University of Tours, April 2016, 2 hours.
- *Ontology-Based Data Access with Ontop*, Lecture within the course *Query Answering with Description Logic Ontologies*, European Summer School in Logic, Language, and Information (ESSLLI 2016), Bolzano, PhD level, August 2016, 1.5 hours.
- *Mapping Management and Expressive Ontologies in Ontology-Based Data Access*, Tutorial at the International Conference on Knowledge Engineering and Knowledge Management (EKAW 2016), Bologna, November 2016, PhD level, 6 hours.
- *Interrogation efficace de bases de données relationnelles avec SPARQL et Ontop*, Tutorial at the Journées Nationales du Développement Logiciel, Marseille, France, July 2017, Master level, 3 hours.
- *Programming Project*, Free University of Bozen-Bolzano, Teaching Assistant, Under-graduate level, March to May 2018, 30 hours.

Memberships

- Member of the Program Committee of the International Workshop on Semantic Web for Cultural Heritage (SW4CH) 2017 and 2018
- Reviewer for:
 - International Conference on Computers, Software & Applications (COMPSAC 2016)
 - Joint International Semantic Technology Conference (JIST 2016)
 - ESWC 2017
 - International Workshop on Semantic Web for Cultural Heritage (SW4CH 2017)
 - AAAI Conference on Artificial Intelligence (AAAI 2017)
 - Semantic Web Journal, 2017
 - International Joint Conference on Artificial Intelligence (IJCAI 2018)

Research and scholarships

- My research focuses on Ontology-Based Data Access (OBDA) and related topics such as query optimization and integration of non-relational data sources.
- Significant achievements:
 - Proposal of a formal semantics for the query language of a popular document database system, MongoDB, characterization of its expressivity and complexity, and efficient integration of this system within the OBDA framework.
 - Proposal of a formal translation from SPARQL to SQL under bag semantics and of query optimization techniques for the SPARQL OPTIONAL operator in an OBDA setting.
 - Semantic Web Journal 2016 Outstanding Paper Award for the article "Ontop: Answering SPARQL queries over relational databases".

Publications

- *Cogrel B.*, Daachi B. and Amirat Y., "Impact-based contextual service selection in a ubiquitous robotic environment", International Conference on Ubiquitous Robots and Ambient Intelligence (URAI 2011), [doi://10.1109/URAI.2011.6145983](https://doi.org/10.1109/URAI.2011.6145983).
- Thesis report, "Contextual selection of continuous services applied to ambient robotics", University of Paris-Est, 2013.
- Bereta K., Botoeva E., Calvanese D., *Cogrel B.*, Lanti D., Rezk M., Komla-Ebri S., Xiao G., "Transformation System Configuration Techniques". Optique Project Deliverable D6.2, 2014.
- Calvanese D., *Cogrel B.*, Guzel Kalayci E., Komla-Ebri S., Kontchakov R., Lanti D., Rezk M., Rodriguez-Muro M., Xiao G., "OBDA with the Ontop Framework", Italian Symposium on Advanced Database Systems (SEBD) 2015.
- Calvanese D., *Cogrel B.*, Komla-Ebri S., Lanti D., Rezk M., Xiao G., "How to Stay Ontop of Your Data: Databases, Ontologies and More", ESWC Satellite Events 2015. [doi://10.1007/978-3-319-25639-9](https://doi.org/10.1007/978-3-319-25639-9).
- Botoeva E., Calvanese D., *Cogrel B.*, Guzel Kalayci E., Komla-Ebri S., Lanti D., Rezk M., Xiao G., Artale A., Franconi E., Nutt W., Tessaris S., "Runtime Query Rewriting Techniques", Optique Project Deliverable D6.3, 2015.
- Botoeva E., Calvanese D., *Cogrel B.*, Rezk M., Xiao G., "OBDA Beyond Relational DBs: A Study for MongoDB", Description Logics (DL), 2016.
- Botoeva E., Calvanese D., *Cogrel B.*, Rezk M., Xiao G., "OBDA Over Non-Relational Databases", Alberto Mendelzon International Workshop on Foundations of Data Management (AMW) 2016.
- Bereta K., Botoeva E., Calvanese D., *Cogrel B.*, Corman J., Donmez U., Guzel Kalayci E., Komla-Ebri S., Lanti D., Xiao G., Artale A., Franconi E., Tessaris S., "Transformation System Tuning Techniques". Optique Project Deliverable D6.4, 2016.

- (*) Calvanese D., *Cogrel B.*, Komla-Ebri S., Kontchakov R., Lanti D., Rezk M., Rodriguez-Muro M., Xiao G., "Ontop: Answering SPARQL queries over relational databases", *Semantic Web Journal*, 2017, SWJ 2016 Outstanding Paper Award. Impact factor: 2.889. doi://10.3233/SW-160217
- Botoeva E., Calvanese D., *Cogrel B.*, Xiao G., "Formalizing MongoDB Queries", *Alberto Mendelzon International Workshop on Foundations of Data Management (AMW) 2017*.
- (*) Botoeva E., Calvanese D., *Cogrel B.*, Xiao G., "Expressivity and Complexity of MongoDB Queries", *International Conference on Database Theory (ICDT)*, 2018. doi://10.4230/LIPIcs.ICDT.2018.9
- (*) Xiao G., Kontchakov R., *Cogrel B.*, Calvanese D., Botoeva E., "Efficient Handling of SPARQL OPTIONAL for OBDA", *International Semantic Web Conference (ISWC)*, 2018.

Further data

- Selected speaker, *Interroger efficacement des bases de données relationnelles avec SPARQL et Ontop*, SemWeb.Pro, Paris, France, November 5, 2015. Awarded as one of the three best presentations of the event.
- Invited speaker, *Accès aux données suivant le principe OBDA avec Ontop*, Journées Ontologies en Sciences Humaines et Sociales, Tours, France, November 9, 2015.
- Invited speaker, *Introduction to the Ontop framework*, Geospatial Mathematical and Linked Big Data Workshop, European Data Forum, Eindhoven, The Netherlands, June 28, 2016.
- Selected speaker, *Formalizing MongoDB Queries*, AMW workshop, Montevideo, Uruguay, June 7, 2017.

Statement of interest

of During the last years, I have been actively investigating how to integrate nested data sources in the OBDA framework both from a theoretical and a practical perspective. Since the end of 2017, my research is also addressing two other sources of heterogeneity that current OBDA systems are not capable to handle correctly and efficiently, namely the presence of heterogeneous datatypes in the data sources and the use of arbitrary transformation functions in the mapping. Therefore, I consider my current activities to be well in line with the proposed activity.

Language competence

French: native
 English: C1
 Italian: B2

Date 08/06/2018

Signature

