

EVGENY KHARLAMOV

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SUMMARY

Evgeny is an Associate Professor at the University of Oslo and a Senior Research Fellow at the University of Oxford. He was previously a visiting researcher at the Universities of Oxford and Edinburgh and a researcher at the University of Bolzano and INRIA Saclay. His research interests span different aspects of Artificial Intelligence and Semantic Technologies with applications in Industry 4.0. He has been actively working on rule-based (equipment) diagnostic languages, (Big) Data Integration, light-weight ontology reasoning, ontology-to-DB mapping bootstrapping, end-users oriented data access interfaces, and ontology evolution and privacy. Evgeny's work has led to more than 70 publications including top tier conferences and journals such as TODS, PVLDB, JCSS, JWS, JSW, IJCAI, AAI, CIKM, and ISWC. His work on semantic equipment diagnostics won the best in-use paper award at ISWC'17, on industrial model management was a runner-up at ISWC'16, and on semantic access to Siemens turbine data won the best demo at ISWC'15. Evgeny runs industrial projects at SIRIUS research centre of Uni Oslo and played a leading role in Oxford's participation in a large scale EU funded Optique project on end-user oriented access to industrial Big Data. He was one of the co-authors and a research co-investigator of the EPSRC grant on data analytics (£866,527). He is the PI on several projects including an industry-funded with Siemens (£300,000) on semantic diagnostics of complex industrial production systems and on analytics and model management.

EDUCATION

- Jan 07 – Apr 11 **PhD in Computer Science.** Free University of Bozen-Bolzano (FUB), Italy. The research was conducted at FUB and in Paris: at INRIA Saclay and Télécom ParisTech. Supervisors: Werner Nutt and Pierre Senellart. Thesis: A Probabilistic Approach to XML Data Management.
- Oct 04 – Nov 06 **MSc in Computer Science** (Computational Logic). Joint MSc degree between TU Dresden & Free University of Bozen-Bolzano. Supervisor: Diego Calvanese.
 - GPA at TU Dresden: **1.7, top 7 %** among MS graduates of 2006,
 - GPA at FUB: **106** out of 109, **top 9 %** among MS graduates of 2006.Thesis: Model Theory and Calculus for the Description Logic DL-Lite.
- Sep 99 – Jun 03 **BSc in Mathematics** (Applied Math). Novosibirsk State University, Russia.
 - **1st Class with Honors.** GPA **4.95** out of 5.0, **top 3 %**.

CAREER

- Feb 18 – pres. **Associate Professor, University of Oslo, Norway.** Duties:
I run industry oriented research projects at the SIRIUS research centre of Uni Oslo.
 - Industry 4.0 and digital twins.
 - Semantic modelling and analytics.
- Sep 13 – pres. **Senior Research Fellow, University of Oxford, UK.** Duties:
 - Research and system development for the following topics:
 - Semantically enhanced machine learning.
 - Rule-based diagnostic languages.
 - Ontology enhanced data access and integration.
 - Semantic query interfaces, ontology-to-RDBs mapping bootstrapping.
 - Funding application: I raised or participated in raising of **£1,432,727**
 - Funding I raised as the PI: **£566,200**
 - Funding I participated in applying for: **£866,527**

CAREER (CONTINUATION)

- Jan 13 – Aug 13 **Research Assistant** at **University of Oxford, UK**.
Reporting to: Ian Horrocks. Duties:
- Coordination of the EU project Optique.
 - Research in the ISG group.
- Jan 10 – Jan 13. **Researcher** at Free University of Bozen-Bolzano, Italy.
Reporting to: Diego Calvanese.
Duties: development of semantics, algorithms, and complexity analysis of:
- Ontology-based Web services and service interoperation.
 - Ontology based data-centric business processes.
 - Evolution of (OWL 2) ontologies.
 - Management and integration of probabilistic XML data.
- Sep 11 – Dec 11 **Visiting Researcher** at Laboratory of Foundations of Computer Science, **University of Edinburgh, UK**.
Reporting to: Leonid Libkin.
Duties: semantics and algorithms for data exchange when data is inconsistent.
- Apr 11 – Apr 12 **Visiting Researcher** at Computing Lab of **University of Oxford, UK**.
Reporting to: Michael Benedict.
Duties: semantics and algorithms for:
- QUASAR system to query annotated documents.
 - Query answering over annotated documents.
 - Bridging annotated documents and Knowledge Bases.
 - Reasoning over annotated documents.
- Sep 09 – Jan 11 **Research Assistant** at **INRIA** Saclay, Paris, France.
Supervisors: Serge Abiteboul, Pierre Senellart.
Duties: development of semantics, algorithms, and complexity analysis of:
- XQuery evaluation over probabilistic XML data.
 - Updates over probabilistic XML data.
 - Data ming for probabilistic XML data.
 - Recursive Markov Chains model for probabilistic XML.
- Dec 08 – Sep 09 **Research Intern** at
INRIA Saclay, Paris, France, supervisor: Serge Abiteboul; and
Télécom Paris Tech, Paris, France, supervisor: Pierre Senellart. My duties:
- Semantics of aggregate queries over probabilistic XML data.
 - Complexity analysis of aggregate query answering under the semantics.
 - Approximation techniques for the aggregate query answering.
- Mar 07 – Jul 07 **Teaching Assistant** for “Foundations of Databases” course at
Free University of Bozen-Bolzano, Bolzano, Italy. My duties:
- Teaching labs to 20 students.
 - Weakly tutoring of students during office-hours.
- Aug 04 – Oct 04 **Lecturer and Lab Assistant** of “Logic Programming” course at mathematical
and computer science high school of Novosibirsk State University, Novosibirsk,
Russia. My duties:
- Frontal lecturing of 15 students.
 - Teaching labs to 15 students.
- Sep 03 – Oct 04 **Engineer** at Institute of Discrete Mathematics and Informatics, Novosibirsk,
Russia. My duties:
- Mathematical modeling and data mining for Bioinformatics.
 - Web design.

FUNDED RESEARCH PROJECTS

- Apr 18 – Apr 20 **Principle Investigator, Nanjing University**, co-PI: Prof. Gong Cheng
Semantic Keyword Search over Graph Data.
Budget raised: RMB 40,000 **£4,500**, to set collaboration with Nanjing Uni.
- Mar 18 – Mar 19 **Principle Investigator, Royal Society** International Exchanges,
SemKSG: Semantic Keyword Search over Graph Data.
Budget raised: **£6,000**, to collaborate with Gong Cheng, Nanjing University.
- Jan 17 – Sep 17 **Principle Investigator**, Oxford Departmental Impact Funding for tech transfer,
FELSIO: Faceted Exploration of Large Scale Industrial Ontologies.
Budget raised: **£30,000**, Topics:
 - Improve SemFacet’s implementation
 - Enable larger scale validation at Aibel.
- Aug 16 – Mar 17 **Principle Investigator, EPSRC** institutional sponsorship grant,
SIIMA: Semantic Industrial Information Modelling and Analytics.
Budget raised: **£25,700**, Topics:
 - Establishing collaboration with Aibel.
 - Deepening collaboration with Siemens.
- Feb 16 – pres. **Researcher Co-Investigator, EPSRC** grant EP/N014359/1, *ED3: Enabling analytics over Diverse Distributed Datasources*. Budget raised: **£866,527**
- Mar 15 – pres. **Principle Investigator**, project OSSA: **Oxford-Siemens** Semantic Analytics.
Budget raised: Siemens **£300,000**, University of Oxford: **£200,000**. Topics:
 - Industry oriented ontology management.
 - Ontology based techniques for data analytics.
- Jan 13 – Oct 16. **Investigator**, project **Optique**: Scalable End-user Access to Big Data.
Project website: <http://www.optique-project.eu/>.
Principal investigator: Ian Horrocks. Funding: **FP7-ICT-2011-8**. Topics:
 - Query formulation interfaces over ontologies.
 - Bootstrapping of ontologies and onto-to-RDB mappings from RDBs.
 - Integration of and query answering over temporal semantic data.
- Apr 12 – Jan 13 **Principal Investigator**, FUB project on Ontology Evolution.
I was reporting to: Diego Calvanese.
Funding: internal of the Free University of Bozen-Bolzano. My duties:
 - Development of semantics and algorithms for evolution of ontologies.
 - Target ontology languages: OWL 2 QL and OWL 2 EL.
- Jun 10 – Jan 13 **Investigator**, EU project **ACSI**: Artifact Centric Service Interoperation.
Project website: <http://acsi-project.eu/>.
Principal investigator: Diego Calvanese. Funding: **FP7-ICT-257593**. Duties:
 - Ontology-based Data-Centric Business Processes (DCBP), Web services.
- Jan 09 – Jun 12 **Investigator**, EU project **Webdam**: Foundations of Web Data Management. Principal investigator: **Serge Abiteboul**. Funding: **ERC-FP7-226513**.
Project website: <http://webdam.inria.fr/>. My duties: probabilistic XML, i.e..
 - Development of discrete and continuous probabilistic models.
 - Queries: Navigational XPath, value joins, monadic second-order logic.
 - Aggregation, updates, view-based query answering, data-mining.
- Apr 10 – Apr 12 **Principle Investigator**, FUB project QUID: Querying Uncertain and Incomplete Data. I was reporting to: Werner Nutt.
Funding: internal of the Free University of Bozen-Bolzano. Topics
 - Probabilistic XML with recursive Markov models.
 - Probabilistic XML: querying and Data Mining.

INDUSTRIAL COLLABORATION

- OSIsoft** In Summer of 2017, Brandon Perry from OSIsoft LLC and I started a joint project that aims at a novel asset management systems that is based on semantic technologies. This project involves DNV GL, Computas AS, Uni Oslo, Uni Bolzano.
- Siemens** In 2015, Steffen Lamparter from Siemens AG and I started a joint research project between Siemens and the University of Oxford. The goal of this collaboration is to develop semantic analytical solutions that can be applied in industry. This project involves several researchers from Oxford, Siemens, Bolzano.
- DNV** In 2016, Johan Kluwer from DNV GL and I started collaboration on modelling patterns for industrial ontologie. The goal of the project is to develop suitable patterns for large scale industrial ontologies and to capture well-known industrial standards such as ISO 15926.
- Aibel** In 2016, several people from Aibel, University of Oslo, DNV, and I started collaboration on industrial ontologies for modelling complex offshore oil platforms and accompanying ontology management and analytical tools. The project's goal is to facilitate modelling, verification, and analyses of oil platforms.
- Optique** From 10/2013 to 10/2016 I have been leading the Oxford's end in an industry oriented EU funded project Optique. The goal of the project was to enhance end-users data access at **Statoil** and **Siemens**. During the course of the projet the Optique platform has been developed and deployed at both Statoil and Siemens. Use case-sties have been conducted and numerous papers and demos have been published.

AWARDS

- 2017 **Best in-use paper** award at the International Semantic Web Conference (**ISWC'17**) *Semantic Rule-Based Equipment Diagnostics*. G. Mehdi, E. Kharlamov, et al.
- 2016 **Runner up for the best in-use paper** award at the International Semantic Web Conference (**ISWC'16**). *Capturing Industrial Information Models with Ontologies and Constraints*. E. Kharlamov, B. Cuenca Grau, E. Jimenez-Ruiz et al.
- 2015 **Best Demonstration** at the International Semantic Web Conference (**ISWC'15**) *Semantic Access to Siemens Streaming Data: the Optique Way*. E. Kharlamov, et al.
- 2012 PhD thesis mention by AI*IA (Italian association for Artificial Intelligence). My PhD thesis was selected as one of the **best 3 PhD theses in Italy** in the area of Artificial Intelligence defended in 2011 – 2012.
- 2011 Visiting Researcher's **Grant**: Computing Laboratory, **Oxford University**.
- 2009 2 years **grant**, funded by the Webdam project to work on probabilistic XML at **INRIA** Saclay and **Telecom ParisTech** in Paris.
- 2008 **IBM Best Master's Thesis Award** for research in the area of Computational Logic. Given by IBM Center for Advanced Studies, Rome, Italy.
- 2006 **Scholarship** by the province of South Tyrol to excellent students: a one-off stipend given to the best students of the Free University of Bozen-Bolzano.
- 2004-06 European Union's **Erasmus Mundus Grant**:
2 years EU grant within European Master's Program in Computational Logic.
- 02, 03, 04 **Scholarship** of Novosibirsk State University to excellent students: a one-off yearly stipend to the best students of Mathematical Department.

PROFESSIONAL SERVICE

Keynote Talks:

- 2013 • 4th Knowledge Engineering and Semantic Web Conference (KESW).

Program Committee:

- 2018
- 16th International Semantic Web Conference (ISWC'17).
 - Extended Semantic Web Conference (ESWC'18).
- 2017
- 3rd Workshop on Summarizing and Presenting Entities and Ontologies (SumPre'17).
 - Workshop on Managing Changes in the Semantic Web (MaCSeW'17).
 - 8th International Conference on Knowledge Engineering and Semantic Web (KESW'17).
 - 7th Joint International Semantic Technology Conference (JIST'17).
 - 11th International Conference on Scalable Uncertainty Management (SUM'17).
- 2016
- 12th International Conference on Semantic Systems (SEMANTiCS'16).
 - 7th Knowledge Engineering and Semantic Web Conference (KESW'16).
 - 10th International Conference on Scalable Uncertainty Management (SUM'16).
- 2015
- 6th Knowledge Engineering and Semantic Web Conference (KESW'15).
 - 1st Workshop on High-Level Declarative Stream Processing (HiDeSt'15).
 - 4th OWL Reasoner Evaluation workshop (ORE'15).
- 2014
- 5th Knowledge Engineering and Semantic Web Conference (KESW'14).
 - 7th Workshop for Ph.D. Students at CIKM (PIKM'14).
 - 27th International Workshop on Description Logics (DL'14).
- 2013
- 4th Knowledge Engineering and Semantic Web Conference (KESW'13).

Supervision of Postdocs, Students, and Interns:

- 2016 – pres. Ognjen Savkovic, postdoc, www.inf.unibz.it/~savkovic/
Research visitor at the University of Oxford from FUB
Topic: Semantic analytics for automated manufacturing.
- 2013 – 2014. Sarunas Marciuska, PhD student. Research intern from FUB.
Topic: Semantic faceted search over knowledge bases.
- 2010 – 2013 Dmitriy Zheleznyakov, PhD student, www.inf.unibz.it/~zheleznyakov/.
Co-supervision with Diego Calvanese from FUB. Best PhD thesis of 2013 at FUB.
Thesis: Logic-Based Evolution of Ontologies (defence date: May, 7, 2013).

Organisational Initiatives:

- Feb 13, 11, 09, 08, 07 Participation in organisation of yearly workshops of **European Master's Program in Computational Logics** (EMCL). My contributions:
- Several alumni talks.
 - Headhunting PhD students for Oxford University.
 - Promotion of PhD programs at EMCL consortium's universities.
 - Participation in panel discussions.
- Feb – Jun 07 Initiated **recruiting** of Master's students for Computer Science Faculty at FUB and **promotion** of the Free University of Bozen-Bolzano in Russia. My duties:
- Organisation of an advertisement campaign of FUB 2 Novosibirsk Unis.
 - Interviewing potential MSc students.
 - 5 out of 25 applicants were selected and came to FUB.
 - 4 out of these 5 MSc students became PhD students at CS faculty at FUB.
 - 2 more students from Novosibirsk came to do MSc at FUB afterwards.

Paper Sub-Reviewing:

- 2015
- Journal of Web Semantics, Special Issue on Knowledge Graphs.
 - International Conference on Information and Knowledge Management (CIKM'15).
 - International Joint Conference on Artificial Intelligence (IJCAI'15).

Paper Sub-Reviewing (continuation):

- 2014
 - Journal of Web Semantics.
 - International Conference on Information and Knowledge Management (CIMK'14).
 - 3rd OWL Reasoner Evaluation Workshop (ORE'14).
- 2013
 - 4th Knowledge Engineering and Semantic Web Conference (KESW'13).
 - Description Logics Workshop (DL'13).
- 2012
 - Artificial Intelligence Journal (AIJ).
 - Conference on Knowledge Engineering and Semantic Web (KESW'12).
 - Symposium on Principles of Database Systems (PODS'12).
 - Exploiting Large Knowledge Repositories (E-LKR'12).
- 2011
 - The Computer Journal, Oxford University.
 - Joint International Semantic Technology Conference (JIST'11).
 - XML Data Mining: Models, Methods, and Applications. IGI Global. 2011.
- 2010
 - International Conference on Database Theory (ICDT'11).
- 2009
 - World Wide Web Conference (WWW'10).
 - International Conference on Data Engineering (ICDE'10).
- 2008
 - International Conference on Cooperative Information Systems (CoopIS), OTM 2009.

SKILLS

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|---------------|---|
| Programming: | Prolog, Pascal, Java, HTML, XHTML, XSLT, CSS. |
| Semantic Web: | RDF, RDFS, OWL, OWL-2; FLORA-2, Protege. |
| Modeling: | ER, UML. |
| Databases: | MySQL, XML, DTD, XML Schema, XPath, XQuery. |
| Languages: | <ul style="list-style-type: none">• Russian – native• English – fluent• German – pre-intermediate• French – beginner |

REFERENCES

- Prof. **Ian Horrocks**. Oxford University, Oxford, UK.
<http://www.cs.ox.ac.uk/ian.horrocks/> Email: ian.horrocks@cs.ox.ac.uk
- Dr. **Steffen Lamparter**, Siemens Corporate Technology, Munich, Germany.
<https://sites.google.com/site/steffenlamparter/> Email: steffen.lamparter@siemens.com
- Prof. **Arild Waaler**, University of Oxford, Oslo, Norway.
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- Prof. **Serge Abiteboul**. INRIA Saclay, Paris, France.
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- Prof. **Pierre Senellart**. Telecom ParsTech; CNRS LTCI, Paris, France.
<http://pierre.senellart.com/> Email: pierre.senellart@telecom-paristech.fr
- Prof. **Werner Nutt**. Free University of Bozen-Bolzano, Bolzano, Italy.
<http://www.inf.unibz.it/~nutt/> Email: nutt@inf.unibz.it
- Prof. **Sergei S. Goncharov**. Novosibirsk State University, Novosibirsk, Russia.
<http://mmfd.nsu.ru/mmfd/persons/gonch.htm> Email: gonchar@math.nsc.ru

Further references are available on request.