

OKBQA 2016

Open Knowledge Base and Question Answering Workshop

**A Workshop of the 26th International Conference on
Computational Linguistics (COLING 2016)**

Proceedings of the Workshop

December 11, 2016

Osaka, Japan

Copyright of each paper stays with the respective authors (or their employers).

ISBN978-4-87974-712-9

Preface

The Workshop on Open Knowledge Base and Question Answering Workshop (OKBQA 2016) took place in Osaka on 11 December 2016, as part of COLING 2016. The huge and rapidly increasing amount of structured and unstructured data available on the Web makes it both possible and necessary to support users in finding relevant information. The trend moves more and more towards smart knowledge services that are able to find information, aggregate them, draw inferences, and present succinct answers without requiring the user to wade through a large number of documents. The novel avenues made possible by knowledge services are numerous and diverse, including ubiquitous information access (from smartphones, tablets, smart watches, etc.), barrier-free access to data (especially for the blind and disabled) and knowledge discovery.

Over the last years, several challenges and calls for research projects have pointed out the dire need for pushing natural language interfaces. In this context, the importance of Semantic Web data as a premier knowledge source is rapidly increasing. But we are still far from having accurate natural language interfaces that allow handling complex information needs in a user-centric and highly performant manner. The development of such interfaces requires the collaboration of a range of different fields, including natural language processing, information extraction, knowledge base construction and population, reasoning, and question answering.

The main goal of this workshop is to join forces in the collaborative development of open frameworks for knowledge extraction and question answering, to share standards, and to foster the creation of an ecosystem of tools and benchmarks.

The call for papers for OKBQA 2016 was issued in September 2016 and elicited a good number of high-quality submissions, each of which was peer-reviewed by three members of the programme committee. At the end we accepted six submissions as long papers, and ten as short papers. Our technical programme combined five oral long papers, two oral short papers and seven poster papers.

We would like to thank all the people who have contributed to the organization and delivery of this workshop: the authors who submitted such high quality papers; the programme committee for their high quality, prompt and thoughtful reviewing; the keynote speakers; the COLING 2016 organizing committees, the workshops chairs, the participants in the workshop; and future readers of these proceedings for your shared interest in this exciting new area of research. Finally, we most gratefully acknowledge the support of our sponsor: Korea Advanced Institute of Science and Technology (KAIST), Semantic Web Research Center (SWRC), KAIST School of Computing, Institute for Information & communications Technology Promotion (IITP) and National Research Foundation of Korea (NRF).

Welcome to OKBQA 2016,
OKBQA organizers

Organisers

Key-Sun Choi, KAIST, Korea
Christina Unger, Universität Bielefeld, Germany
Piek Vossen, Vrije Universiteit Amsterdam, Netherlands
Jin-Dong Kim, Database Center for Life Science (DBCLS), Japan
Axel-Cyrille Ngonga Ngomo, Universität Leipzig, Germany
Teruko Mitamura, Carnegie Mellon University, USA

Programme Committee

Anastasia Krithara, Institute of Informatics and Telecommunications (IIT), Greece
André Freitas, University of Passau, Germany
Ashutosh Jadhav, IBM, USA
Axel-Cyrille Ngonga Ngomo, University of Leipzig, Germany
Christina Unger, Universität Bielefeld, Germany
Eun-kyung Kim, KAIST, Korea
Filip Ilievski, VU University Amsterdam, Netherlands
Frank Schilder, Thomson Reuters, USA
Giorgos Giannopoulos, Athena Research Center, Greece
Gosse Bouma, University of Groningen, Netherlands
Hady Elsahar, Laboratoire Hubert Curien, France
Jin-Dong Kim, Database Center for Life Science (DBCLS), Japan
Key-Sun Choi, KAIST, Korea
Marco Rospocher, FBK, Italy
Marieke van Erp, Vrije Universiteit Amsterdam, Netherlands
Michel Dumontier, Stanford University, USA
Piek Vossen, Vrije Universiteit Amsterdam, Netherlands
Pum-mo Ryu, Busan University of Foreign Studies, Korea
Ricardo Usbeck, University of Leipzig, Germany
Roberto García, Universitat de Lleida (UdL), Spain
Sadao Kurohashi, Kyoto University, Japan
Stefano Borgo, Laboratory for Applied Ontology, Italy
Teruko Mitamura, Carnegie Mellon University, USA
Vanessa Lopez, IBM, USA

Invited Keynote Speakers

Sebastian Riedel, University College London (UCL)
Noriko Kando, National Institute of Informatics (NII)

Feature Talkers

Jin-Dong Kim, Database Center for Life Science (DBCLS)

Table of Contents

<i>Using Wikipedia and Semantic Resources to Find Answer Types and Appropriate Answer Candidate Sets in Question Answering</i>	
Po-Chun Chen, Meng-Jie Zhuang and Chuan-Jie Lin	1
<i>Large-Scale Acquisition of Commonsense Knowledge via a Quiz Game on a Dialogue System</i>	
Naoki Otani, Daisuke Kawahara, Sadao Kurohashi, Nobuhiro Kaji and Manabu Sassano	11
<i>A Hierarchical Neural Network for Information Extraction of Product Attribute and Condition Sentences</i>	
Yukinori Homma, Kugatsu Sadamitsu, Kyosuke Nishida, Ryuichiro Higashinaka, Hisako Asano and Yoshihiro Matsuo	21
<i>Combining Lexical and Semantic-based Features for Answer Sentence Selection</i>	
Jing Shi, Jiaming Xu, Yiqun Yao, Suncong Zheng and Bo Xu	30
<i>An Entity-Based approach to Answering Recurrent and Non-Recurrent Questions with Past Answers</i>	
Anietie Andy, Mugizi Rwebangira and Satoshi Sekine	39
<i>Answer Presentation in Question Answering over Linked Data using Typed Dependency Subtree Patterns</i>	
Rivindu Perera and Parma Nand	44
<i>BioMedLAT Corpus: Annotation of the Lexical Answer Type for Biomedical Questions</i>	
Mariana Neves and Milena Kraus	49
<i>Double Topic Shifts in Open Domain Conversations: Natural Language Interface for a Wikipedia-based Robot Application</i>	
Kristiina Jokinen and Graham Wilcock	59
<i>Filling a Knowledge Graph with a Crowd</i>	
GyuHyeon Choi, Sangha Nam, Dongho Choi and KEY-SUN CHOI	67
<i>Pairing Wikipedia Articles Across Languages</i>	
Marcus Klang and Pierre Nugues	72
<i>SRDF: Extracting Lexical Knowledge Graph for Preserving Sentence Meaning</i>	
Sangha Nam, GyuHyeon Choi, Younggyun Hahm and KEY-SUN CHOI	77
<i>QAF: Frame Semantics-based Question Interpretation</i>	
Younggyun Hahm, Sangha Nam and KEY-SUN CHOI	82
<i>Answering Yes-No Questions by Penalty Scoring in History Subjects of University Entrance Examinations</i>	
Yoshinobu Kano	91
<i>Dedicated Workflow Management for OKBQA Framework</i>	
Jiseong Kim, GyuHyeon Choi and KEY-SUN CHOI	97

Conference Program

Sunday, December 11, 2016

9:00–9:10 *Opening*

9:10–10:00 *Keynote by Sebastian Riedel, “Inferbeddings: Reading, Reasoning and Programming with Vector Representations”*

10:00–10:20 *Featured Talk by Jin-Dong Kim, “Introduction to OKBQA framework: toward an open community collaboration for QA pipelines”*

10:20–10:50 *Break*

Session oral 1

10:50–11:20 *Using Wikipedia and Semantic Resources to Find Answer Types and Appropriate Answer Candidate Sets in Question Answering*
Po-Chun Chen, Meng-Jie Zhuang and Chuan-Jie Lin

11:20–11:50 *Large-Scale Acquisition of Commonsense Knowledge via a Quiz Game on a Dialogue System*
Naoki Otani, Daisuke Kawahara, Sadao Kurohashi, Nobuhiro Kaji and Manabu Sasano

11:50–12:00 *Poster Lightning Talks*

12:00–14:00 *Lunch (Setting of the poster)*

14:00–14:45 *Keynote by Noriko Kando*

Sunday, December 11, 2016 (continued)

Session oral 2

- 14:45–15:05 *A Hierarchical Neural Network for Information Extraction of Product Attribute and Condition Sentences*
Yukinori Homma, Kugatsu Sadamitsu, Kyosuke Nishida, Ryuichiro Higashinaka, Hisako Asano and Yoshihiro Matsuo
- 15:05–15:25 *Combining Lexical and Semantic-based Features for Answer Sentence Selection*
Jing Shi, Jiaming Xu, Yiqun Yao, Suncong Zheng and Bo Xu

15:25–16:00 *Break, Poster session*

Session poster

- 15:25–16:00 *An Entity-Based approach to Answering Recurrent and Non-Recurrent Questions with Past Answers*
Anietie Andy, Mugizi Rwebangira and Satoshi Sekine
- 15:25–16:00 *Answer Presentation in Question Answering over Linked Data using Typed Dependency Subtree Patterns*
Rivindu Perera and Parma Nand
- 15:25–16:00 *BioMedLAT Corpus: Annotation of the Lexical Answer Type for Biomedical Questions*
Mariana Neves and Milena Kraus
- 15:25–16:00 *Double Topic Shifts in Open Domain Conversations: Natural Language Interface for a Wikipedia-based Robot Application*
Kristiina Jokinen and Graham Wilcock
- 15:25–16:00 *Filling a Knowledge Graph with a Crowd*
GyuHyeon Choi, Sangha Nam, Dongho Choi and KEY-SUN CHOI
- 15:25–16:00 *Pairing Wikipedia Articles Across Languages*
Marcus Klang and Pierre Nugues
- 15:25–16:00 *SRDF: Extracting Lexical Knowledge Graph for Preserving Sentence Meaning*
Sangha Nam, GyuHyeon Choi, Younggyun Hahm and KEY-SUN CHOI

Sunday, December 11, 2016 (continued)

Session oral 3

- 16:00–16:20 *QAF: Frame Semantics-based Question Interpretation*
Younggyun Hahm, Sangha Nam and KEY-SUN CHOI
- 16:20–16:40 *Answering Yes-No Questions by Penalty Scoring in History Subjects of University Entrance Examinations*
Yoshinobu Kano
- 16:40–17:00 *Dedicated Workflow Management for OKBQA Framework*
Jiseong Kim, GyuHyeon Choi and KEY-SUN CHOI
- 17:00–17:10** *Closing*

