



City Research Online

## City, University of London Institutional Repository

---

**Citation:** Shvaiko, P., Euzenat, J., Jimenez-Ruiz, E., Hassanzadeh, O. & Trojahn, C. (2021). Ontology Matching OM-2021 : Proceedings of the ISWC Workshop. CEUR Workshop Proceedings, 3063, pp. i-ii. ISSN 1613-0073

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

---

**Permanent repository link:** <https://openaccess.city.ac.uk/id/eprint/27596/>

**Link to published version:**

**Copyright:** City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

**Reuse:** Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

---

---

---

City Research Online:

<http://openaccess.city.ac.uk/>

[publications@city.ac.uk](mailto:publications@city.ac.uk)

---

# Ontology Matching

OM-2021

Proceedings of the ISWC Workshop

## Introduction

Ontology matching<sup>1</sup> is a key interoperability enabler for the semantic web, as well as a useful tactic in some classical data integration tasks dealing with the semantic heterogeneity problem. It takes ontologies as input and determines as output an alignment, that is, a set of correspondences between the semantically related entities of those ontologies. These correspondences can be used for various tasks, such as ontology merging, data interlinking, query answering or navigation over knowledge graphs. Thus, matching ontologies enables the knowledge and data expressed with the matched ontologies to interoperate.

The workshop had three goals:

- To bring together leaders from *academia*, *industry* and *user institutions* to assess how academic advances are addressing real-world requirements. The workshop strives to improve academic awareness of industrial and final user needs, and therefore, direct research towards those needs. Simultaneously, the workshop serves to inform industry and user representatives about existing research efforts that may meet their requirements. The workshop also investigated how the ontology matching technology is going to evolve.
- To conduct an extensive and rigorous evaluation of ontology matching and instance matching (link discovery) approaches through the OAEI (Ontology Alignment Evaluation Initiative) 2021 campaign<sup>2</sup>.
- To examine similarities and differences from other, old, new and emerging, techniques and usages, such as process matching, web table matching or knowledge embeddings.

The program committee selected 5 submissions for oral presentation and 6 submissions for poster presentation. 20 matching systems participated in this year's OAEI campaign. Further information about the Ontology Matching workshop can be found at: <http://om2021.ontologymatching.org/>.

---

<sup>1</sup><http://www.ontologymatching.org/>

<sup>2</sup><http://oaei.ontologymatching.org/2021>

**Acknowledgments.** We thank all members of the program committee, authors and local organizers for their efforts. We appreciate support from Trentino Digitale<sup>3</sup>, the EU SEALS (Semantic Evaluation at Large Scale) project<sup>4</sup>, the EU HOBBIT (Holistic Benchmarking of Big Linked Data) project<sup>5</sup>, the MELT (Matching Evaluation Toolkit) project<sup>6</sup>, the Pistoia Alliance Ontologies Mapping project<sup>7</sup>, IBM Research<sup>8</sup> and SIR-IUS Centre for Scalable Data Access<sup>9</sup>.



*Pavel Shvaiko*  
*Jérôme Euzenat*  
*Ernesto Jiménez-Ruiz*  
*Oktie Hassanzadeh*  
*Cássia Trojahn*

*December 2021*

---

<sup>3</sup>[www.trentinodigitale.it](http://www.trentinodigitale.it)

<sup>4</sup>[www.seals-project.eu](http://www.seals-project.eu)

<sup>5</sup><https://project-hobbit.eu/challenges/om2020/>

<sup>6</sup><https://dwslab.github.io/melt/>

<sup>7</sup>[www.pistoiaalliance.org/projects/current-projects/ontologies-mapping](http://www.pistoiaalliance.org/projects/current-projects/ontologies-mapping)

<sup>8</sup>[research.ibm.com](http://research.ibm.com)

<sup>9</sup><https://www.mn.uio.no/sirius/>

# Organization

## Organizing Committee

Pavel Shvaiko,  
*Trentino Digitale SpA, Italy*

Jérôme Euzenat,  
*INRIA & University Grenoble Alpes, France*

Ernesto Jiménez-Ruiz,  
*City, University of London, UK & SIRIUS, University of Oslo, Norway*

Oktie Hassanzadeh,  
*IBM Research, USA*

Cássia Trojahn,  
*IRIT, France*

## Program Committee

Alsayed Algergawy, *Jena University, Germany*  
Manuel Atencia, *INRIA & University Grenoble Alpes & INRIA, France*  
Zohra Bellahsene, *LIRMM, France*  
Jiaoyan Chen, *University of Oxford, UK*  
Valerie Cross, *Miami University, USA*  
Jérôme David, *University Grenoble Alpes & INRIA, France*  
Gayo Diallo, *University of Bordeaux, France*  
Daniel Faria, *Instituto Gulbenkian de Ciência, Portugal*  
Alfio Ferrara, *University of Milan, Italy*  
Marko Gulić, *University of Rijeka, Croatia*  
Wei Hu, *Nanjing University, China*  
Ryutaro Ichise, *National Institute of Informatics, Japan*  
Antoine Isaac, *Vrije Universiteit Amsterdam & Europeana, Netherlands*  
Naouel Karam, *Fraunhofer, Germany*  
Prodromos Kolyvakis, *EPFL, Switzerland*  
Patrick Lambrix, *Linköpings Universitet, Sweden*  
Oliver Lehmberg, *University of Mannheim, Germany*  
Fiona McNeill, *Heriot Watt University, UK*  
Majeed Mohammadi, *Eindhoven University of Technology, Netherlands*  
Axel Ngonga, *University of Paderborn, Germany*  
George Papadakis, *University of Athens, Greece*  
Catia Pesquita, *University of Lisbon, Portugal*

Henry Rosales-Méndez, *University of Chile, Chile*  
Kavitha Srinivas, *IBM, USA*  
Pedro Szekely, *University of Southern California, USA*  
Valentina Tamma, *University of Liverpool, UK*  
Ludger van Elst, *DFKI, Germany*  
Xingsi Xue, *Fujian University of Technology, China*  
Ondřej Zamazal, *Prague University of Economics, Czech Republic*  
Songmao Zhang, *Chinese Academy of Sciences, China*

## Table of Contents

### Long Technical Papers

Biomedical ontology alignment with BERT <i>Yuan He, Jiaoyan Chen, Denvar Antonyrajah, Ian Horrocks</i> .....	1
Matching with transformers in MELT <i>Sven Hertling, Jan Portisch, Heiko Paulheim</i> .....	13
Property-based entity type graph matching <i>Fausto Giunchiglia, Daqian Shi</i> .....	25
A hybrid approach for large knowledge graphs matching <i>Omaima Fallatah, Ziqi Zhang, Frank Hopfgartner</i> .....	37
Challenges of evaluating complex alignments <i>Beatriz Lima, Daniel Faria, Catia Pesquita</i> .....	49

## OAEI Papers

Results of the Ontology Alignment Evaluation Initiative 2021 <i>Mina Abd Nikooie Pour, Alsayed Algergawy, Florence Amardeilh, Reihaneh Amini, Omaima Fallatah, Daniel Faria, Irimi Fundulaki, Ian Harrow, Sven Hertling, Pascal Hitzler, Martin Huschka, Liliana Ibanescu, Ernesto Jiménez-Ruiz, Naouel Karam, Amir Laadhar, Patrick Lambrix, Huanyu Li, Ying Li, Franck Michel, Engy Nasr, Heiko Paulheim, Catia Pesquita, Jan Portisch, Catherine Roussey, Tzanina Saveta, Pavel Shvaiko, Andrea Splendiani, Cássia Trojahn, Jana Vataščinová, Beyza Yaman, Ondřej Zamazal, Lu Zhou</i> .....	62
ALIN results for OAEI 2021 <i>Jomar da Silva, Kate Revoredo, Fernanda Baião, Cabral Lima</i> .....	109
ALOD2vec matcher results for OAEI 2021 <i>Jan Portisch, Heiko Paulheim</i> .....	117
AgreementMakerDeep results for OAEI 2021 <i>Zhu Wang, Isabel F. Cruz</i> .....	124
AML and AMLC results for OAEI 2021 <i>Daniel Faria, Beatriz Lima, Marta Contreiras Silva, Francisco Couto, Catia Pesquita</i> .....	131
ATBox results for OAEI 2021 <i>Sven Hertling, Heiko Paulheim</i> .....	137
Fine-TOM matcher results for OAEI 2021 <i>Leon Knorr, Jan Portisch</i> .....	144
GMap results for OAEI 2021 <i>Weizhuo Li, Shiqi Zhou, Qiu Ji, Bingjie Lu</i> .....	152
KGMatcher results for OAEI 2021 <i>Omaima Fallatah, Ziqi Zhang, Frank Hopfgartner</i> .....	160
Lily results for OAEI 2021 <i>Shiyi Zou, Jiajun Liu, Zherui Yang, Yunyan Hu, Peng Wang</i> .....	167
LogMap family participation in the OAEI 2021 <i>Ernesto Jiménez-Ruiz</i> .....	175
LSMatch results for OAEI 2021 <i>Abhisek Sharma, Archana Patel, Sarika Jain</i> .....	178
OTMapOnto: optimal transport-based ontology matching <i>Yuan An, Alex Kalinowski, Jane Greenberg</i> .....	185



TOM matcher results for OAEI 2021 <i>Daniel Kossack, Niklas Borg, Leon Knorr, Jan Portisch</i> .....	193
Wiktionary matcher results for OAEI 2021 <i>Jan Portisch, Heiko Paulheim</i> .....	199

## Posters

Combining FCA-Map with representation learning for aligning large biomedical ontologies <i>Guoxuan Li, Songmao Zhang, Jiayi Wei, Wenqian Ye</i> .....	207
Integrating knowledge graphs for explainable artificial intelligence in biomedicine <i>Marta Contreiras Silva, Daniel Faria, Catia Pesquita</i> .....	209
Concept for metadata and time series data integration based on a material science application ontology <i>Paul Zierep, Dirk Helm</i> .....	211
Bootstrapping supervised product taxonomy mapping with hierarchical path translations for the regulatory intelligence domain <i>Alfredo Maldonado, Spencer Sharpe, Paul ter Horst</i> .....	213
State-of-the-art instance matching methods for knowledge graphs <i>Alex Boyko, Siamak Farshidi, Zhiming Zhao</i> .....	215
ThValRec: threshold value recommendation approach for ontology matching <i>Kumar Vidhani, Gulpriya Bhatia, Mangesh Gharote, Sachin Lodha</i> .....	217

