Bo Fu Patrick Lambrix Huanyu Li Susana Nunes Catia Pesquita (Eds.)

VOILA! 2024

Proceedings of the 9th International Workshop on

Visualization and Interaction for Ontologies, Linked Data and Knowledge Graphs

Co-located with ISWC 2024, Baltimore, USA, November 12, 2024.



Title: Visualization and Interaction for Ontologies, Linked Data and Knowledge Graphs (VOILA! 2024)

Editors: Bo Fu, Patrick Lambrix, Huanyu Li, Susana Nunes, Catia Pesquita

ISSN: 1613-0073

CEUR Workshop Proceedings (CEUR-WS.org)

Copyright © 2024 for the individual papers by the papers' authors. Copyright © 2024 for the volume as a collection by its editors. This volume and its papers are published under the Creative Commons License Attribution 4.0 International (CC BY 4.0).

Organizing Committee

Bo Fu, California State University Long Beach, USA Patrick Lambrix, Linköping University, Sweden Huanyu Li, Linköping University, Sweden Susana Nunes, LASIGE, Faculdade de Ciências, Universidade de Lisboa, Portugal Catia Pesquita, LASIGE, Faculdade de Ciências, Universidade de Lisboa, Portugal

Program Committee

Mina Abd Nikooie Pour, Linköping University, Sweden Ali Hasnain, Royal College of Surgeon, Ireland Kārlis Čerāns, University of Latvia, Latvia Anika Gross, Anhalt University of Applied Sciences, Germany Mayank Kejriwal, University of Southern California, USA Ying Li, Linköping University, Sweden Declan O'Sullivan, Trinity College Dublin, Ireland Evan Patton, Massachusetts Institute of Technology, USA Emmanuel Pietriga, INRIA, France Harald Sack, FIZ Karlsruhe, Leibniz Institute for Information Infrastructure & KIT Karlsruhe, Germany Ahmet Soylu, OsloMet – Oslo Metropolitan University, Norway Markel Vigo, The University of Manchester, UK

Additional Reviewer

Ebrahim Norouzi, Leibniz Institute for Information Infrastructure, Germany

Preface

The Semantic Web enables intelligent agents to create knowledge by interpreting, integrating and drawing inferences from the abundance of data at their disposal. It encompasses approaches and techniques for expressing and processing data in machinereadable formats. All these tasks demand a human-in-the-loop; without them, the great vision of the Semantic Web would hardly be achieved. Meanwhile, visual interfaces for modeling, editing, exploring, integrating, etc., of semantic content have not received much attention yet.

The size and complexity of Ontologies, Linked Data and Knowledge Graphs in the Semantic Web constantly grows and the diverse backgrounds of the users and application areas multiply at the same time. Providing users with visual representations and intuitive interaction techniques can significantly aid the exploration and understanding of the domains and knowledge represented by Ontologies, Linked Data and Knowledge Graphs.

Visualizing Ontologies, Linked Data or Knowledge Graphs is not a new topic and a number of approaches have become available in recent years, with some being already wellestablished, particularly in the field of ontology modeling. In other areas of ontology engineering, such as ontology alignment and debugging, although several tools have been developed, few provide a graphical user interface, not to mention navigational aids or comprehensive visualization and interaction techniques.

In the presence of a huge network of interconnected resources, one of the challenges faced by the Semantic Web community is the visualization of multidimensional datasets to provide for efficient overview, exploration and querying tasks, to mention just a few. With the focus shifting from a Web of Documents to a Web of Data, changes in the interaction paradigms are in demand as well. Novel approaches also need to take into consideration the technological challenges and opportunities given by new interaction contexts, ranging from mobile, touch, and gesture interaction to visualizations on large displays, and encompassing highly responsive web applications.

There is no one-size-fits-all solution but different use cases demand different visualization and interaction techniques. Ultimately, providing better user interfaces, visual representations and interaction techniques will foster user engagement and likely lead to higher quality results in different applications employing semantics, and proliferate the consumption of Ontologies, Linked Data and Knowledge Graphs.

These and related issues are addressed by the VOILA! workshop series concerned with *Visualization and Interaction for Ontologies, Linked Data and Knowledge Graphs.* The ninth edition of VOILA! was co-located with the 23rd International Semantic Web Conference (ISWC 2024) and took place as a half-day event on November 12, 2024. It was organized around scientific paper presentations and discussions.

The call for papers for VOILA! 2024 attracted 7 submissions in different paper categories.

Three reviewers were assigned to each submission. Based on the reviews, we selected 6 contributions for presentation at the workshop.

We thank all authors for their submissions and all members of the VOILA! program committee for their useful reviews and comments. We are also grateful to Irene Celino and Raghava Mutharaju, the workshop chairs of ISWC 2024, for their continuous support during the workshop organization.

September 2024

Bo Fu, Patrick Lambrix, Huanyu Li, Susana Nunes, Catia Pesquita

VOILA! 2024 http://voila-workshop.github.io/2024/

Contents

Regular papers	1
Vertical Context of Geographic Locations: An Empirical Compar- ison of Three Visualization Approaches <i>by Prasad Madushanka, Auriol Degbelo</i>	2
Customizable knowledge graph visualization using the Whyis Knowledge Explorer <i>by Jamie P. McCusker</i>	24
Evaluating InterDev: A FAIR Platform for International Develop- ment Data by Matt Murtagh-White, P.J. Wall, Declan O'Sullivan	35
The Knowledge Graph Explorer for the Virtual Record Treasury of Ireland by Alex Randles, Lucy McKenna, Lynn Kilgallon, Beyza Yaman, Peter Crooks, Declan O'Sullivan	47
Evaluating the Knowledge Graph Editor of the Virtual Record Treasury of Ireland by Alex Randles, Lucy McKenna, Lynn Kilgallon, Beyza Yaman, Peter Crooks, Declan O'Sullivan	62
Demo paper	78
KGSnap! in Practice: a Block-based Programming Environment	

for Enabling Knowledge Graph Literacy by Alessia Antelmi, Vincenzo Offertucci, Maria Angela Pellegrino 79