

# Preface

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This volume presents the proceedings of the **1st International Workshop on Approaches for Making Data Interoperable (AMAR 2019)** and **1st International Workshop on Semantics for Transport (Sem4Tra)** held in Karlsruhe, Germany, September 9, 2019, co-located with SEMANTiCS 2019.

Interoperability of data is an important factor to make transportation data accessible, therefore we present the topics alongside each other in this proceedings.

## 1 AMAR: International Workshop on Approaches for Making Data Interoperable

This was the first instalment of the AMAR workshop co-located with SEMANTiCS 2019. AMAR focuses on interoperability of data and its multilinguality. Recently, there has been a rapid growth in the amount of data available on the Web. Data is produced by different communities working in a wide range of domains, using several techniques. This way a large volume of data in different formats and languages is generated. Accessibility of such heterogeneous and multilingual data becomes an obstacle for reuse due to the incompatibility of data formats and the language gap. This incompatibility of data formats impedes the accessibility of data sources to the right community. For instance, most of open domain question answering systems are developed to be effective when data is represented in RDF. They can not operate with data in the very common CSV files or presented in unstructured formats. Usually, the data they draw from is in English rendering them unable to answer questions e.g. in Spanish. On the other hand, NLP applications in Spanish cannot make use of a knowledge graph in English. Different communities have different requirements in terms of data representation and modeling. It is crucial to make the data interoperable to make it accessible for a variety of applications.

The articles included in this volume went through a peer-review process where each submission was reviewed by at least three reviewers. We accepted three research papers. The articles tackle open problems and techniques for interoperability issues in data such as in research data management, quality issues in mapping rules, and access methods. The workshop program included a keynote talk by Prof. Dr. Maria-Esther Vidal, head of Scientific Data Management lab at the Leibniz Information Centre For Science and Technology University Library (TIB), Germany, and a full professor (on-leave) at Universidad Simn Bolvar (USB), Venezuela. Additionally, a panel discussion on different interoperability issues in syntactic, schematic and semantic level as well as in terms of multilinguality (language barriers).

## 2 Sem4Tra: International Workshop on Semantics for Transport

This was the first instalment of the Sem4Tra workshop co-located with SEMANTiCS 2019. It is focused on the application of semantic technologies over the transport domain and its heterogeneous data, with a particular focus on how these technologies could facilitate the Mobility-as-a-Service (MaaS) paradigm.

The MaaS paradigm consists in the integration of various forms of transport services into a single mobility service. The goal is to provide a traveler with the service needed for a door-to-door travel under a single payment whilst integrating disparate modes of mobility (public transport, car- or bike-sharing, taxi/car rental, or a combination thereof) under one travel experience.

After years of conceptualization and strategizing, MaaS is becoming a present reality rather than a future goal. However, many challenges remain unanswered. The development of multimodal travel information, planning and booking services, and the interoperability between business applications is currently limited due to the fragmentation and incompatibility of interchange formats and protocols both within and across transport sectors.

The technology known as RDF, Linked Data and the Semantic Web, proposes a framework to discuss the semantics of terms in a decentralized fashion on web-scale. As MaaS is decentralized by definition, the Sem4Tra workshop targets researchers and practitioners that are contributing to transform the transportation sector by proposing new semantic-based solutions to achieve the MaaS objectives. Moreover, Sem4Tra is an opportunity for disseminating and discussing use cases and studies showing the application of semantic technologies in the Transport domain to tackle the above-mentioned challenges.

The articles included in this volume went through a peer-review process where each submission was reviewed by at least two reviewers. We accepted five papers: two position papers and three demo papers. The articles tackle open problems and techniques about the management and interoperability of transport data using semantic web technologies. The workshop program included a keynote from Riccardo Santoro, the Head of Innovation Programmes at Ferrovie dello Stato Italiane (Trenitalia).

### Organizing Committee: AMAR

- Lucie-Aimée Kaffee, University of Southampton, UK & TIB Leibniz Information Centre for Science and Technology, Germany
- Kemele M. Endris, L3S Research Center, Germany & TIB Leibniz Information Centre for Science and Technology, Germany
- Maria-Esther Vidal, TIB Leibniz Information Centre for Science and Technology, Germany

### Organizing Committee: Sem4Tra

- Marco Comerio, CEFRIEL
- Mersedeh Sadeghi, Politecnico di Milano
- David Chaves-Fraga, Ontology Engineering Group, Universidad Politécnica de Madrid
- Pieter Colpaert, IDLab, Dept of Electronics and Information Systems, Ghent University

### Programme Committee: AMAR

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- David Chaves-Fraga, Universidad Politécnica de Madrid
- Jeremy Debattista, Trinity College Dublin
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- Diego Collarana, Enterprise Information System (EIS)
- Javier D. Fernández, Vienna University of Economics and Business
- Jose M. Gimenez-Garcia, Universite Jean-Monnet
- Amrapali Zaveri, Maastricht University
- Irlan Grangel, Bosch Corporate Research
- Elena Demidova, L3S Research Center
- Manolis Koubarakis, National and Kapodistrian University of Athens
- Elena Montiel-Ponsoda, Universidad Politécnica de Madrid
- Julia Bosque-Gil, Universidad Politecnica de Madrid
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### Programme Committee: Sem4Tra

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- Freddy Priyatna, Universidad Politécnica de Madrid
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