Semantics for Transport 2025 – Sem4Tra

Shahrom Sohi[1], Julian Rojas[2], Pieter Colpaert[2], Ghislain Atemezing[3], Mersedeh Sadeghi[4] and Cornelis Bouter[5]

[1]Vienna University of Economics and Business, Welthandelsplatz 1, Vienna, 1020, Austria
[2]Ghent University – IDLab – imec, Technologiepark-Zwijnaarde 126, 9052 Gent, Belgium
[3]ERA, European Agency for Railways, 120 Rue Marc Lefrancq, 59307 Valenciennes, France
[4]University of Cologne, Albertus-Magnus-Platz, 50923 Köln, Germany
[5]TNO, The Netherlands Institute for Applied Research, 2595 DA, The Hague, The Netherlands

Abstract

This is a summary of the Semantics for Transport (Sem4Tra) co-located with the 21st International Conference on Semantic Systems (SEMANTiCS).

Summary

Integrated and intelligent transportation cannot be realized without a Data Space in which data flows thanks to fully automatic data integration. A Mobility Data Space improves every aspect of the passenger journey, from ticketing to navigation, from traffic to parking management, and from car/bike sharing to door-to-door travel. A Logistics Data Space should safely and securely provide all information for optimizing supply chains in terms of both saving time and reducing carbon emissions. The federated and heterogeneous nature of the logistics sector makes the application of Data Spaces and semantic technologies especially relevant. Data Space technology enables participants to regulate, in a detailed way, which participants can access parts of the data and under what conditions. Semantic technologies can provide ways to align differing meanings among logistic modalities. A Digital Product Passport/Provenance can gather all information from heterogeneous sources to give a full picture of a product's heritage throughout its supply chain. The development of multimodal travel information, planning, and booking services, as well as interoperability between business applications, is currently limited due to the fragmentation and incompatibility of interchange formats and protocols both within and across transport sectors. This workshop seeks to advance the Mobility Data Space through Semantic Web, Linked Data, and Knowledge Graph techniques. In scope are methods to query and reason over integrated data on the web that can help an end-user plan and book a trip from A to B, as well as extract insights and share information for supply chain operations management. We target researchers and practitioners who are contributing to the transformation of passenger and freight transportation by proposing new solutions based on semantic techniques and technologies. The workshop is an opportunity to disseminate and discuss use cases and studies demonstrating the application of semantic and web technologies in the broader transportation domain to tackle the aforementioned challenges.

The website of the workshop is: https://semantic-transportation.github.io/sem4tra-kg-website/

Semantics for Transport (Sem4Tra), co-located with SEMANTiCS'25: International Conference on Semantic Systems, September 3–5, 2025, Vienna, Austria

shahrom.sohi@wu.ac.at (S. Sohi); julianandres.rojasmelendez@ugent.be (J. Rojas); pieter.colpaert@ugent.be (P. Colpaert); ghislain.atemezing@era.europa.eu (G. Atemezing); sadeghi@cs.uni-koeln.de (M. Sadeghi); cornelis.bouter@tno.nl (C. Bouter)
0009-0000-0735-1645 (S. Sohi); 0000-0002-6645-1264 (J. Rojas); 0000-0001-6917-2167 (P. Colpaert); 0000-0003-1562-6922 (G. Atemezing); 0000-0001-6405-8824 (M. Sadeghi); 0000-0002-5448-0543 (C. Bouter)