SEMANTiCS 2017 Workshops

Drift-a-LOD | EVENTS | LIDARI | SALAD | SIS-IoT
held at the
13th International Conference on Semantic Systems -
SEMANTiCS 2017
11-14 September 2017
Amsterdam, Netherlands
https://2017.semantics.cc/workshops

Editors

Anna Fensel & Laura Daniele - General Editors

Sándor Darányi, Laura Hollink, Albert Meroño-Peñuela, Efstratios Kontopoulos   **Drift-a-LOD**
Lora Aroyo, Victor de Boer, Oana Inel, Gerard Kuys   **EVENTS**
Thomas Moser, Munir Merdan   **LIDARI**
Maria Maleshkova, Ruben Verborgh, Laura Daniele, Felix Leif Keppmann   **SALAD**
Laura Daniele, Anna Fensel, Raúl García-Castro, Enrico Scarrone, Omar Elloumi   **SIS-IoT**

Preface

These proceedings include all peer-reviewed papers that were presented at the workshops co-located with the 13th International Conference on Semantic Systems (SEMANTiCS 2017), in Amsterdam, Netherlands. The workshops took place on the days before and after the conference, namely, on September 11 and 14, 2017.

SEMANTICS 2017 conference has hosted five workshops with a peer-reviewed paper selection process:
- 1st International Workshop on Detection, Representation and Management of Concept Drift in Linked Open Data (Drift-a-LOD),
- 1st International Workshop on Understanding Events Semantics in Cultural Heritage (EVENTS),
- 2nd International Workshop on Linked Data in Industry 4.0 (LIDARI),
- 6th International Workshop on Services and Applications over Linked APIs and Data (SALAD),
- 1st International Workshop on Semantic Interoperability and Standardization in the IoT (SIS-IoT).

Brief summaries of these workshops can be found below, and corresponding papers are documented in the SEMANTiCS 2017 workshop proceedings.

Summary Drift-a-LOD 2017

The continuous growth of the Linked Open Data (LOD) cloud is extending to various new domains. In many of these, facts change continuously: political landscapes evolve, medical discoveries lead to new cures, artists form new collaborations. In terms of knowledge representation, we observe that instances change their roles, new relations appear, old ones become invalid, and classes change both their definition and member-instances.

The evolution of LOD poses concrete new challenges to stakeholders: data publishers need to detect changes in the real world and capture them in their datasets; users and applications need automated tools to adapt querying over diachronic datasets; knowledge engineers want to understand modelling practices behind ontology changes; linguists study drift in the meaning of words. As a continuation of last year's successful Drift-a-LOD, this year's workshop sought to form a community of researchers and practitioners working on detecting, representing and managing concept drift in and for LOD.

Drift-a-LOD'17 brought together different communities that define, identify and manage the dynamics of concepts in their knowledge bases using various domain-specific methods (statistical inference, symbolic reasoning, natural language processing, etc.), leveraging the LOD cloud as a data source or as a result publishing platform.

In the 2017 edition, which took place in Amsterdam as part of the SEMANTiCS 2017 conference, Drift-a-LOD'17 featured 3 research papers, 1 industry paper, and 2 keynote

presentations by Antske Fokkens ("Drifting distributions? Possibilities and risks of using distributional semantics for studying concept drift") and Javier Fernández ("LOD is all about evolution: Querying and Managing evolving Linked Open Data"). A final discussion session addressed urgent topics within this community, such as differences in theory and methods, the need of infrastructure for an observatory for concept drift, the issue of tracing human interactions in data changes, a list of practical use cases, and implications for education.

The organizers are thankful to the workshop programme committee members that made this workshop possible with their reviews and comments.

Summary EVENTS 2017

Cultural heritage institutions are continuously rethinking the access to their collections to allow the public as well as scholars and professionals to interpret and contribute to their collections. An important role in the interpretation of cultural heritage collections is played by 'historic events', which meaning keeps being re-discovered and re-interpreted in light of modern discussions.

The EVENTS 2017 workshop was intended for researchers, practitioners, and students of ICT, Digital Humanities and Cultural Heritage domains. The workshop explored top-down the state-of-the-art and work in progress in the space around events, e.g. detecting, modelling and representing events, with a special focus in the cultural heritage domain.

The workshop featured a keynote speech from Gerard Kuys:" A way of applying an event model to National Archives' Data". This was followed by two full paper presentations which presented work on conceptual modelling for CH data and a search system for event search in Digital Heritage collections respectively. After lunch, we discussed a number of shorter invited papers on events for explorative search in Cultural Heritage collections connected to the DIVE+ project (http://diveproject.beeldengeluid.nl). Finally, the participants joined in a crowdsourcing experiment where they were invited to identify events in a dataset.

EVENTS 2017 was organized and supported by members of the KNAW E-humanities Events working group (https://www.ehumanities.nl/events-working-group/).

Summary LIDARI 2017

Industry 4.0 is a collective term (created in Germany) for the technological concepts of cyber-physical systems, the Internet of Things and the Internet of Services, leading to the vision of the Smart Factory. Within a modular structured Smart Factory, cyber-physical systems monitor physical processes, and make decentralized decisions. Over the Internet of Things, cyber-physical systems communicate and cooperate with each other and humans in real time.
As identified in both academia and industry , there are several design principles in Industry 4.0, which support companies in identifying and implementing Industry 4.0 scenarios:
- Interoperability: the ability of cyber-physical systems (i.e. workpiece carriers or assembly stations) and humans to connect and communicate via the Internet of Things,

- Virtualization: linking sensor data (from monitoring physical processes) with virtual plant models and simulation models,
- Decentralization: the ability of cyber-physical systems within Smart Factories to make decisions on their own,
- Real-Time Capability: the capability to collect and analyze data and provide the derived insights immediately,
- Service Orientation: offering of services (of cyber-physical systems, humans or Smart Factories),
- Modularity: flexible adaptation of Smart Factories to changing requirements by replacing or expanding individual modules.

The overall goal of the workshop is to identify challenges and limitations from the manufacturing engineering industry in the scope of the mentioned design principles, and bring them together with experts and solution approaches from the linked data community in the scope of Industry 4.0.

Summary SALAD 2017

The World Wide Web has significantly evolved during the past 25 years, developing from a collection of a few interlinked static pages to a global ubiquitous platform for sharing, searching, and browsing dynamic and customisable content, in a variety of different media formats. Future developments bring the promise of a higher level of automation, distributed search and the use of intelligent personal agents, which autonomously perform tasks on behalf of the user. The foundation for these trends is laid by the ever growing number of users and websites, the increasing data volumes, but also by the use and popularity of Linked Data and Web APIs. Unfortunately, despite some initial efforts and progress towards integrated use, these two technologies remain mostly disjunct in terms of developing solutions and applications. To this purpose, **Services and Applications over Linked APIs and Data -- SALAD** aims to explore the possibilities of facilitating a better fusion of Web APIs and Linked Data, thus enabling the harvesting and provisioning of data through applications and services on the Web. In particular, we focus on investigating how both static and dynamic resources (for example, sensor data or streams) exposed via interfaces on the Web, can be used together with semantic data, as means for enabling a shared use and providing a basis for developing rich applications.

Having the actuality of the research topic in mind, we focus on research work that employs Linked Data and Web API solutions in order to address challenges in the area of the Internet of Things (IoT). The vision of the IoT is to leverage Internet standards in order to interconnect all types of embedded devices (e.g., patient monitors, medical sensors, congestion monitoring devices, traffic-light controls, temperature sensors, smart meters, etc.) and real-world objects, and thus to make them a part of the Internet and provide overall interoperability. Therefore, IoT aims to build a future of connected devices that is truly open, flexible, and scalable. In the SALAD workshop we will explore how Linked APIs and Data can be used in order to contribute towards achieving this goal.

Summary SIS-IoT 2017

Semantic technology and linked data are perceived by the IoT industry as beneficial technologies to enable semantic interoperability in the fragmented landscape of IoT ecosystems and platforms. However, most industrial practitioners are not familiar with these technologies and are not willing to learn them, as they believe the learning curve is too steep. IoT developers - whether device manufacturers or application developers - ask for rather simple ontologies that are easy to use, and clear guidelines on how to implement semantic web/ linked data solutions, possibly supported by standards development organizations (SDOs), whereas the information they can currently find on the Internet is overwhelming and perceived as not directly applicable. As we have often heard from industrial stakeholders in the past years, there is a clear need to bring semantic technology out of the research labs - where it has been successful so far - to be adopted and applied in operational environments by the IoT industry.

The main objective of this workshop is to bring SDOs and industrial practitioners in IoT with an interest in semantic interoperability together with the strong and successful research community at SEMANTiCS 2017 to discuss current trends and challenges in Semantic Interoperability and Standardization in IoT.

The SIS-IoT workshop will include a keynote speech and a panel with experts from the research community and industry. **The keynote speech was delivered by Omar Elloumi, the "IoT Evangelist of the Year".**

The SIS-IoT workshop has been supported by:
- AIOTI
- ENTROPY project
- ETSI
- oneM2M
- VICINITY project