Abstract—The design and operation of computer systems has traditionally been driven by technical aspects and considerations. However, the usage characteristics of information and communication systems are both implicitly and explicitly determined by social interaction. This requires taking into account different types of relationships, such as trust or affinity, between the users and system components.

The SASO\textsuperscript{ST} workshop addresses all aspects of self-adaptive and self-organising mechanisms in socio-technical systems, covering different perspectives of this exciting research area ranging from normative and trust management systems to socio-inspired design strategies for distributed algorithms, collaboration platforms, and communication protocols.

I. WORKSHOP BACKGROUND

Self-adaptive and self-organising socio-technical systems, as addressed by the SASO\textsuperscript{ST} workshop\textsuperscript{1}, require a highly interdisciplinary approach. One of the workshop’s key objectives is to establish a research community around the creation of such systems. For this purpose, the workshop brings together experts from diverse areas, such as distributed computer systems, complex systems, and the social sciences, to discuss their findings and elaborate on the topic from various complementary perspectives.

II. WORKSHOP PROGRAMME

The third edition of SASO\textsuperscript{ST}, held in conjunction with the Ninth IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2015) in Cambridge, Massachusetts, offers an innovative and varied programme. As in the previous editions of the workshop, original research contributions are complemented by invited talks and discussion panels.

\textsuperscript{1}http://sasost.issse.de

A. Invited Talks

The workshop programme opens with a keynote talk by Asu Ozdaglar (MIT), who will discuss various aspects of her research on large-scale dynamic multi-agent networked systems, including communication networks, transportation networks, as well as economic and social networks.

Pascal Perez (University of Wollongong) will present the crowdsourcing platform \textit{PetaJakarta.org} in his talk, a socio-technical system coupling people, mobile technology, and autonomous sensors in order to provide up-to-date information in case of flooding disasters.

Doubling as an introduction to the closing panel discussion, Ingo Scholtes (ETH Zürich) will provide an overview of the macroscopic, network science perspective on socio-technical systems in his talk titled "Understanding Complex Systems: When Big Data meets Network Science".

B. Paper Presentations

The set of accepted papers also covers a wide range of facets from the analysis and monitoring of collective user dynamics to the actual modelling and design of socio-technical systems. The presentations will be grouped accordingly in respective sessions with complementary talks.

In their contribution, Valetto et al. \cite{1} outline a new methodological paradigm and software platform for designing sustainable computer-supported collective action within smart communities. This enables, for instance, collaborative energy conservation within smart cities. The presented platform is based on the idea of “Collective Intelligence as a Service” and uses insights from dynamic psychological processes and social practices.

Discussing a series of sociological concepts and their application to socio-technical systems, Botev et al. \cite{2} argue in favour of such concepts as being fundamental to the efficiency, operation, and generally a meaningful design. The
reviewed examples range from decentralised collaborative filtering and self-organised resource allocation in peer-to-peer networks to consistency management approaches for distributed collaborative authoring.

Nallur et al. suggest in [3] that, under certain conditions, adding information to socio-technical systems involving non-rational behaviour may be detrimental to the overall system performance. To substantiate this claim, they provide multi-agent simulations based on the minority game and self-coordination in vehicular ad hoc networks, analysing the performance based on mean dispersion and fairness metrics.

Niro et al. [4] introduce a privacy-preserving extension of gossip-based aggregation algorithms for the distributed computation of the average in a network. By adding a pseudo-random perturbation featuring appropriate statistical properties, the degree of privacy as well as the accuracy of the calculated average can be controlled. A fully distributed power market whose participants compute the average consumed and produced energy as indicator for the development of prices serves as case study.

In [5], Kantert et al. discuss an extension of the RPL routing protocol by end-to-end trust relationships in order to discover and isolate malicious nodes in large-scale wireless sensor networks. An adaptive signature mechanism for blocks of trust values is proposed which reduces the distribution overhead compared to signing each value individually.

Patkos et al. [6] sketch an approach based on collective awareness enabling the users of online services to specify privacy policies in the form of data collection and data protection norms, thereby encouraging big data innovations. The presented Privacy-by-Norms approach relies on (1) a set of computational logical rules enforcing data privacy and data protection prescriptions, (2) a visual representation of the norms allowing to decide whether they are fit for purpose, and (3) a collective choice process in which all affected individuals can participate in modifying the rules.

III. Concluding Remarks

We are confident that the mix of invited and contributed talks, presentations of original research papers, as well as open discussion rounds will once more create a varied program and an engaging atmosphere for all participants to discuss the various facets of self-organising and self-adaptive socio-technical systems.

The workshop organisers would like to thank the program committee members along with all contributing authors, presenters, and panelists, and look forward to an exciting and fruitful event on September 25 in Cambridge, MA.

REFERENCES


