Preface

Motivation and focus The volume of data is rapidly increasing due to the development of the technology of information and communication. This data comes mostly in the form of streams. Learning from this ever-growing amount of data requires flexible learning models that self-adapt over time. In addition, these models must take into account many constraints: (pseudo) real-time processing, high-velocity, and dynamic multi-form change such as concept drift and novelty. Consequently, learning from streams of evolving and unbounded data requires developing new algorithms and methods able to learn under the following constraints: a) random access to observations is not feasible or it has high costs, b) memory is small with respect to the size of data, c) data distribution or phenomena generating the data may evolve over time, which is known as concept drift and d) the number of classes may evolve overtime. Therefore, efficient data streams processing requires particular drivers and learning techniques:

- Incremental learning in order to integrate the information carried by each new arriving data;
- Decremental learning in order to forget or unlearn the data samples which are no more useful;
- Novelty detection in order to learn new concepts.

It is worthwhile to emphasize that streams are very often generated by distributed sources, especially with the advent of Internet of Things and therefore processing them centrally may not be efficient especially if the infrastructure is large and complex. Scalable and decentralized learning algorithms are potentially more suitable and efficient.

Aim and scope This workshop welcomes novel research about learning from data streams in evolving environments. It will provide the researchers and participants with a forum for exchanging ideas, presenting recent advances and discussing challenges related to data streams processing. It solicits original work, already completed or in progress. Position papers are also considered. The scope of the workshop covers the following, but not limited to:

- Online and incremental learning
- Online classification, clustering and regression
- Online dimension reduction
- Data drift and shift handling
- Online active and semi-supervised learning
- Online transfer learning
- Adaptive data pre-processing and knowledge discovery
- Applications in
- Monitoring
  - Quality control

- Fault detection, isolation and prognosis,
- Internet analytics
- Decision Support Systems,
- etc.

This workshop accepted six papers which were carefully reviewed by at least three program committe members.

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