CALL FOR PAPERS

for the Workshop on

Active Learning:
Applications, Foundations and Emerging Trends
to be held within the scope of the

16th International Conference on Knowledge Technologies and Data-Driven Business
i-KNOW, 18-19 October, Graz, Austria

ORGANIZERS

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We invite submissions for the Workshop "Active Learning: Applications, Foundations and Emerging Trends", which is part of the International Conference on Knowledge Technologies and Data-driven Business (i-KNOW). The i-KNOW has a 15-year history of bringing together the best minds from science and industry. Since 2001, this international conference is annually held in Graz, Austria. It has successfully brought together leading researchers and developers from these fields and attracted over 500 international attendees every year.

see `http://vincentlemaire-labs.fr/iknow2016/`

AIMS AND SCOPE

Active Learning addresses the intersection between Data Mining/Machine Learning and interaction with humans. Aiming at optimizing this interaction, it bridges the gap between data-centric and user-centric approaches. For example, by requesting the most relevant information or performing the most informative experiment. Facing big volumes of data but limited human annotation and supervision capacities, active approaches become increasingly important for improving the efficiency in interactions.

Active learning is a very useful methodology in on-line industrial applications for reducing efforts for sample annotation and measurements of "target" values (e.g., quality criteria). It further reduces the computation speed of machine learning and data mining tools, as embedded models are only updated based on a subset of samples selected by the implemented active learning technique. This is especially important when performing modeling and mining cycles from on-line data streams, where real-time demands to model updates and inference processing are quite usual.

Various approaches, application scenarios and deployment protocols have been proposed for active learning. However, despite the efforts made from academia and industry researchers alike, there are still gaps between research on theoretical and practical aspects. When designing active learning algorithms for real-world data, some specific issues are raised. The main ones are scalability and practicability. Methods must be able to handle high volumes of data, in spaces of possibly high-dimension, and the process for labeling new examples by an expert must be optimized.

The aim of this workshop is to provide a forum for researchers and practitioners to discuss approaches, identify challenges and gaps between active learning research and meaningful applications, as well as define new application-relevant research directions. We encouraged also papers that describe applications of active learning in real-world. The industrial context, the main difficulties met and the original solution developed, had to be described. Industrials with open research questions on active learning may also write a paper to raise the questions to the scientific community.

Therefore, contributions on active learning are welcome that address aspects including, but not limited to:

- New Active Learning methods and models for pools of Big Data or fast, evolving datastreams

- On-line Active Learning from data streams with the usage of incremental, single-pass selection techniques

- Active, user-centric approaches for selection of information

- New interactive learning protocols and application scenarios such as, e.g., BCI, crowdsourcing

- Active on-line design of experiments

- Evaluation of Active Learning and comparative studies

- Active class or feature selection

- Active Learning for cost-sensitive applications or imbalanced data

- Active Learning with enhanced adaptive budget management/stopping criteria.

- Active Learning in connection with any evolving model/system respecting special selection criteria developed for these types of models.

- Combinations of active with other techniques such as transfer learning, drift detection and handling

- Decremental Active Learning with the usage of unlearning techniques.

- Active Learning in combination with recent complex model structures such as deep learning neural networks, extreme learning machines or recurrent neural networks

- Active Learning with ensemble selection strategies using specific switching or fusion techniques

- Innovative use of Active Learning techniques, e.g. for detecting outliers, frauds, attacks

- Applications and Real-world deployment of Active Learning techniques, for example in Quality Control, Predictive Maintenance, Healthcare Applications, Social Media Content Retrieval and Interpretation, or Soft Sensor Networks

IMPORTANT DATES

Deadline for submissions: July 31 23:59 CEST, 2016

Notification of acceptance: August 29, 2016

Camera ready submission: September 18, 2016

Workshop and i-KNOW 2016 Conference in Graz: October 17-19, 2016

SUBMISSION INSTRUCTIONS

- Page limit: 2-8 pages (excluding references and supplemental material)

- The paper must be be written in English and contain author names, affiliations, and email addresses

- Contributions will be published in open access workshop proceedings. Please format them according to the one column style for CEUR-WS, s haee `http://ceur-ws.org/Vol-XXX/samplestyles`

- The paper must be in PDF (make sure that the PDF can be viewed on any platform)

- Submission via EasyChair: `https://easychair.org/conferences/?conf=alatiknow2016`

- Single-blinded review process, papers need not to be anonymized

- At least one author is required to register for i-KNOW.

- Each accepted paper must be presented in the workshop at i-KNOW 2016

- Contributions are published in open access workshop proceedings, and presented in a spotlight talk/discussion and a poster session