Preface

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.

All in all, we accepted five regular papers (5 papers submitted) and one tutorial to be published in these workshop proceedings. The authors discuss approaches, identify challenges and gaps between active learning research and meaningful applications, as well as define new application-relevant research directions.

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Georg Krempl, Vincent Lemaire,
Edwin Lughofer, Daniel Kottke

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