WORKSHOP Proposal:

Knowledge Discovery from Ubiquitous Data Streams

The goal of this workshop is to promote an interdisciplinary forum for researchers who deal with sequential learning, anytime learning, real-time learning, online learning, etc. from ubiquitous and distributed data streams.
Distributed Learning from Data Streams is a recent and increasing research area with challenging applications and contributions from fields like Data Bases, Data Mining, Machine Learning, and Visualization.
This event will be supported by European Project KDUbiq-WG3.

Motivation

Advances in miniaturization and sensor technology lead to sensor networks, collecting detailed spatio-temporal data about the environment. How to learn from these distributed continuous streaming data? Which are the main characteristics of a learning algorithm acting in sensor networks? What are the relevant issues, challenges, and research opportunities? Which emerging applications?

The goal of this workshop is to convene researchers (from both academia and industry) who deal with decision rules, decision trees, association rules, clustering, filtering, preprocessing, post processing, feature selection, visualization techniques, etc. from distributed data streams and related themes. Special emphasis in constrained algorithms designed to handle limited bandwidth, limited computing and storage capabilities, limited battery power, and specific network-communication protocols.

Structure of the Workshop

One-day Workshop:

Invited Speaker – (Hillol Kargupta)
8/10 Research Papers
Panel Knowledge Discovery in Ubiquitous Environments

TOPICS

A data stream is an ordered sequence of instances that can be read only once or a small number of times using limited computing and storage capabilities. Topics include but are not restricted to:

Distributed Data Stream Models
Learning in Ubiquitous environments
Learning from Sensor Networks
Learning from Social Networks
Clustering from Distributed Data Streams
Decision Trees from Distributed Data Streams
Association Rules from Data Streams
Visualization Techniques for Distributed Data Streams
Incremental on-line Learning Algorithms
Single-Pass and Scalable Algorithms
Real-Time and Real-World Applications using Stream data
Adaptive mining techniques in data streams
Resource-aware distributed data stream mining
Theoretical frameworks for distributed data stream mining

Potential Workshop Program Committee

- Michaela Black, University of Ulster, Coleraine, Northern Ireland, UK
- Andre Carvalho, University of Sao Paulo, Brazil
- Pedro Domingos, University of Washington, Seattle, WA, USA
- Francisco Ferrer, University of Seville, Spain
- Mohamed Gaber, Monash University, Victoria, Australia
- Joao Gama, University of Porto, Portugal
- Ray Hickey, University of Ulster, Coleraine, Northern Ireland, UK
- Hillol Kargupta, University of Maryland - Baltimore County, Baltimore, MD, USA
- Ralf Klinkenberg, University of Dortmund, Germany
- Jeremy Z. Kolter, Georgetown University, Washington, DC, USA / Stanford University, CA, USA
- Miroslav Kubat, University Miami, FL, USA
- Mark Last, Ben-Gurion University, Israel
- Mark Maloof, Georgetown University, Washington, DC, USA
- S. Muthu Muthukrishnan, Rutgers University and AT&T Research, USA
- Masayuki Numao, Osaka University, Japan
- Pedro Rodrigues, University of Porto, Portugal
- Josep Roure, Technical University of Catalunya, Spain / Carnegie Mellon University, Pittsburgh, PA, USA
- Jesus S. Aguilar-Ruiz, University of Seville, Spain / University of Pablo de Olavide, Spain
- Bernhard Seeger, University Marburg, Germany

- Elaine Parros Machado de Sousa, University of Sao Paulo, Brazil
- Min Wang, IBM Watson Research Center, Hawthorne, NY, USA
- Wei Wang, University of North Carolina, Chapel Hill, NC, USA
- Xiaoyang *Sean* Wang, University of Vermont, Burlington, VT, USA
- Gerhard Widmer, University of Linz, Austria
- Philip S. Yu, IBM Watson Research Center, Yorktown Heights, NY, USA

WORKSHOP CHAIRS

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