VISFERENCE

Improved exploration/visualization interface for conference papers

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Project developed with:
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and Mark Reid (NICTA-MLRG, ANU)

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problem

Motivation

Most of conferences proceedings present their content as a one-dimension, non-interactive list of papers on a web page. However, the reader of this kind of presentation might not know the reason for the paper order; does not get an overview of the contents or relations between the papers; and has very limited search and filtering functionalities available.

Aim

To explore more effective interfaces to represent contents of conference proceedings. One of the inspiring works in this direction is called Word Storms, by Castella and Sutton (2013), applied to the International Conference on Machine Learning , ICML 2012 (1)(2)

(1) Word storm, web site:
http://groups.inf.ed.ac.uk/cup/wordstorm/wordstorm.html

(2) Word storm, paper: Castella, Q., & Sutton, C. (2013). Word Storms: Multiples of Word Clouds for Visual Comparison of Documents. arXiv preprint arXiv:1301.0503.

JMLR v28 screenshot
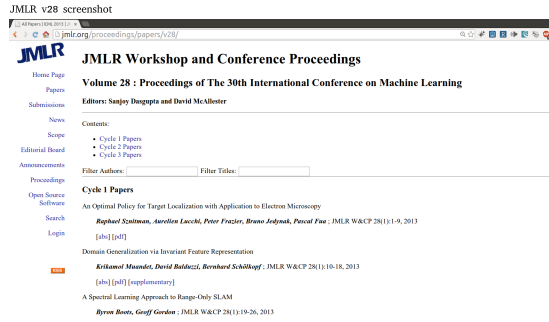
Negative features of a flat and non-interactive list:

- No sorting options
- No overview of the dataset
- No relationships among items
- Only CTRL+f (or COMMAND+f) for searching
- No filtering

The data

In collaboration with Mark Reid, we used the list of accepted papers from JMLR Workshop and Conference Proceedings Volume 28 : Proceedings of The 30th International Conference on Machine Learning. This is a collection of 282 papers.
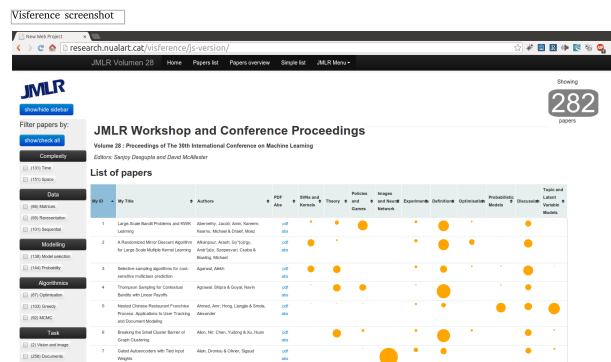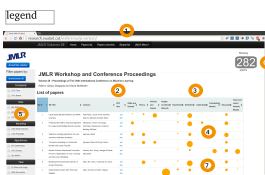
The analysis

Wray Buntine conducted the analysis using topic models. Firstly we created a collection of representative texts of ML (from books to Arxiv papers). From this analysis, we created ten topic and, instead of topic1, topic2, topic3, we gave a human name to each of them.

Finally every paper from JMLR dataset has being scored according to the ten topics.

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results

Visference is accessible with user "jmlr" and password "jmlr" at:
http://research.nualart.cat/visference/js-version/

legend

Access to traditional flat list

Visference screenshot

Counter of visible papers according to applied filters

Acumulative two-level filters.
Proposed ML categories and subcategories:

- Complexity: Time, Space, Algorithmic.
- Data: Matrices, Reresentation, Sequential.
- Modelling: Model selection, Probability, Graphs/networks, Latent variables, Loss function/utility.
- Algorithmis: Optimisation, Greedy, MCMC, Online.
- Task: Vision and image, Documents, Medical.
- Interaction: Supervised, Feedback.
- Theory: Proofs, Information theory, Complexity.

NOTE: we encourage feedback and open discussion about this proposed general ML categories.

Ten topic models represented.
Proposed human-readable names:

- SVNs and Kernels
- Theory
- Policies and Games
- Images and Neural Network
- Experiments
- Definitions
- Optimisation
- Probabilistic Models
- Discussion
- Topic and Latent Variable Models

NOTE: we encourage feedback and open discussion about the proposed names. Topic models can be seen here:
http://research.nualart.cat/visference/visference-topicmodels.html

Sort by:
- title
- first author
- any topic model

Topic of a paper scored by sized-circles

Compare papers of sorted columns of topics

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timeline

more

work effort

less

more

team work

individual work

project started

Visference-II started with Wray Buntine: visference as a search output representation from a one-paper query

Visference accessible from the official page of JMLR

Visference II first versions

2013   2014   2015

NICTA's ethics approval for user tests

This poster

User evaluation tests

Visference included in my PhD as one of the created artifacts

Visference started coding

NICTA MLRG Retreat kioloa 2014