

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)

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
JMLR Workshop and Conference Proceedings
Volume 28 : Proceedings of The 30th International Conference on Machine Learning
Editors: Sanjoy Dasgupta and David McAllester
Contents:
• Cycle 1 Papers
• Cycle 2 Papers
• Cycle 3 Papers
Filter Authors: [] Filter Titles: []
Cycle 1 Papers
An Optimal Policy for Target Localization with Application to Electron Microscopy
Raphael Sznitman, Aurelien Lucchi, Peter Frazier, Bruno Jedynak, Pascal Fua ; JMLR W&CP 28(1):1-9, 2013
[abs] [pdf] [supplementary]
A Spectral Learning Approach to Range-Only SLAM
Byron Boots, Geoff Gordon ; JMLR W&CP 28(1):19-26, 2013
...

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.

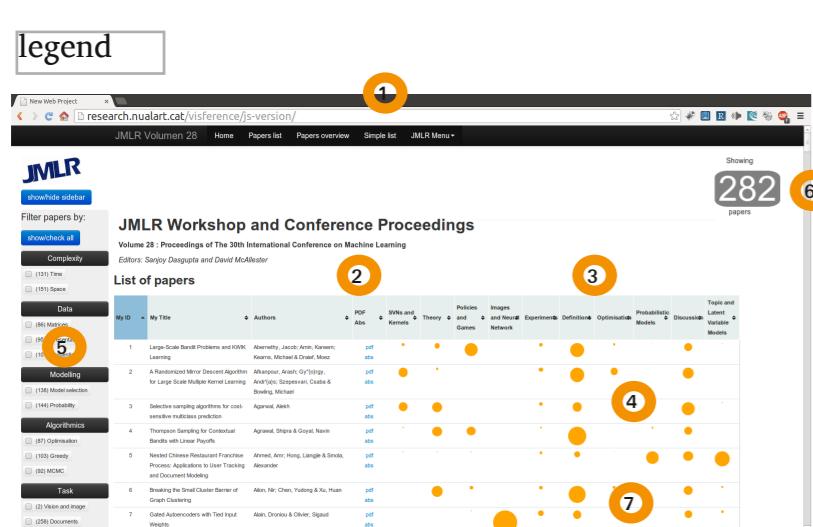
The analysis

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.

results

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



Visference screenshot
JMLR Volumen 28 Home Papers list Papers overview Simple list JMLR Menu
Showing 282 papers
JMLR Workshop and Conference Proceedings
Volume 28 : Proceedings of The 30th International Conference on Machine Learning
Editors: Sanjoy Dasgupta and David McAllester
List of papers
My ID My Title Authors PDF Abs SVNs and Kernels Theory Policies and Games Images and Neural Network Experiments Definitions Optimisation Probabilistic Models Topic and Latent Variable Models
1 Large-Scale Bandit Problems and KNN Abernethy, Jacob; Amin, Karim; Kearns, Michael; Dardé, Meir pdf abs svns_and_kernels theory policies_and_games images_and_neural_network experiments definitions optimisation probabilistic_models topic_and_latent_variable_models
2 A Randomized Mirror Descent Algorithm for Large Scale Multiple Kernel Learning Akbarpour, Arash; György, Ákos; Szepesvári, Csaba & Bowling, Michael pdf abs svns_and_kernels theory policies_and_games images_and_neural_network experiments definitions optimisation probabilistic_models topic_and_latent_variable_models
3 Selective sampling algorithms for cost-sensitive multiclass prediction Agapiou, Alekh pdf abs svns_and_kernels theory policies_and_games images_and_neural_network experiments definitions optimisation probabilistic_models topic_and_latent_variable_models
4 Thompson Sampling for Contextual Bandits with Linear Payoffs Agrawal, Shipra & Goyal, Navin pdf abs svns_and_kernels theory policies_and_games images_and_neural_network experiments definitions optimisation probabilistic_models topic_and_latent_variable_models
5 Nested Chinese Restaurant Franchise Problem: Applications to User Tracking and Document Modeling Ahmed, Amr; Hong, Liangle & Smola, Alexander pdf abs svns_and_kernels theory policies_and_games images_and_neural_network experiments definitions optimisation probabilistic_models topic_and_latent_variable_models
6 Breaking the Small Cluster Barrier of Graph Clustering Alon, Nir; Chen, Yubing & Xu, Huan pdf abs svns_and_kernels theory policies_and_games images_and_neural_network experiments definitions optimisation probabilistic_models topic_and_latent_variable_models
7 Gated Autoencoders with Tied Input Weights Alain, Olivier; Sigmund pdf abs svns_and_kernels theory policies_and_games images_and_neural_network experiments definitions optimisation probabilistic_models topic_and_latent_variable_models
Sort by:
- title
- first author
- any topic model
Topic of a paper scored by sized-circles
Compare papers of sorted columns of topics
Counter of visible papers according to applied filters

5 Accumulative 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.
- Algorithmics: 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.

