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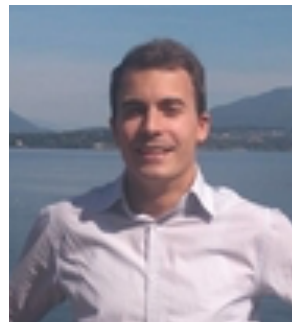

Semantic Image Collection Summarization with Frequent Subgraph Mining

ABSTRACT

Every day we generate large amounts of images and videos, including personal galleries, product catalogues and social data. Image collection summarization, with the aim of displaying the important highlights with a few manageable pieces of information, is fundamental to understand and organize the content of these collections.

We propose SImS, an image collection summarization technique based on frequent subgraph mining.

Differently from previous methods, mainly based on low level visual features and image tags, our method exploits scene graphs to represent images.

Our results are interpretable and provide more powerful semantic information with respect to previous techniques, where the summary is a subset of the collection in terms of images or image patches.

BIOGRAPHY

Andrea Pasini received the master's degree in computer engineering from Politecnico di Torino, Italy, in 2017. His main research interests concern machine learning, deep learning, big data and data mining. He focuses on the study of neural network architectures, such as Convolutional Neural Networks for image segmentation. His actual research topic consists in the integration of machine learning models with semantic knowledge extracted from data. This research approach applies to different data types such as images, sounds and texts. He won the best student's paper award in IEEE AIKE 2019 with the article "Detecting Anomalies in Image Classification by Means of Semantic Relationships".