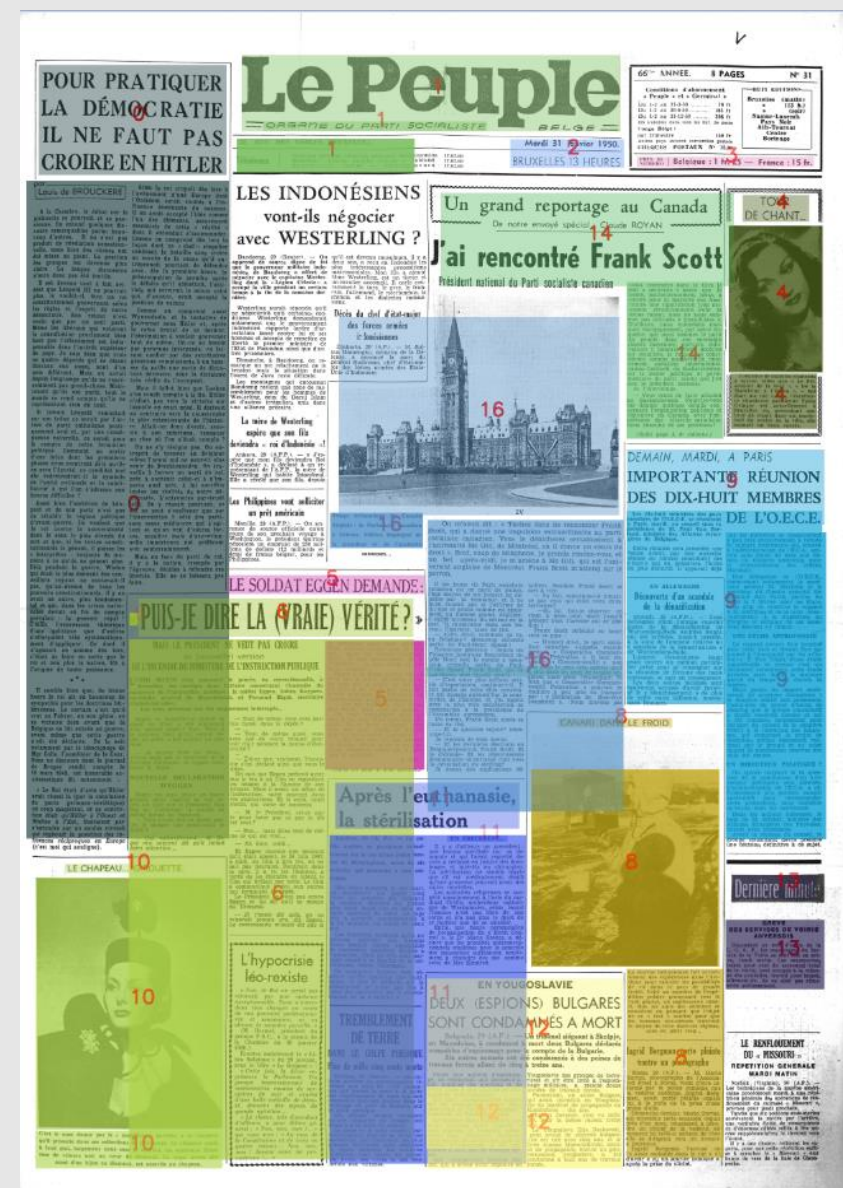SEMANTIC INTELLIGENCE: SPATIO-TEMPORAL ENRICHMENT AND ANALYSIS

Dilawar Ali, Nico Van de Weghe and Steven Verstockt

LOOK INTO PAST : A DIFFERENT PERSPECTIVE TO EXPLORE CULTURAL HERITAGE DATASETS

Newspaper

Article segmentation

Building recognition

Location information in image caption

Visage britannique du Canada Anglais j **le Parlement canadien à Ottawa.** Edifice imprégné de la grandeur et de l'austérité

Search results for similar pictures from Google

Computational Rephotography

– Rephotography is a valuable technique for visualizing the temporal evolution of a historical site. Visualizing a time travel story in an image can enable humanities scholars to study and analyze changes in a place over time.

Research Goals

Metadata enrichment tools (based on NLP/CV) for different types of multimodal data (e.g. in order to improve searchability of the collections)
– Document layout analysis
– Article segmentation
– Entity recognition
– Clustering methodologies
– Image quality enhancement
– to improve finding similar content (e.g. similar articles, pictures, titles/captions, …)

Geo-localization
– Query based on image captions
– Filtering based on online feature matching
– Geotagging of untagged historical images

Rephotography
– Computational rephotography of historical scenes using feature matching or deep learning

Computational Rephotography

Research Outcome

– Enrichment of histroical datasets to facilitate cross collection linkage and improve searchability
– Hybrid approach of using both caption text and image feature enables the Geo localization of historical images
– Computational rephotography of historical scenes to facilitate the humanities scholars to study the social changes of a location during a specific time period, and it will allow users to go back in time to see how a specific place looked in the past

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