Identifying the Geographic Location of an Image with a Multimodal Probability Density Function

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ABSTRACT

Knowing the location that a photograph was taken provides us with data that could be useful in a wide spectrum of applications. With the advance of digital cameras, and with many users exchanging their digital cameras for their GPS-enabled mobile phones, photographs annotated with geographical locations are becoming ever more present on photo-sharing websites such as Flickr. However there is still a wide majority of online content that is not geotagged, meaning that algorithms for efficient and accurate geographical estimation of an image are needed. We present a general model for using both textual metadata and visual features of photos to automatically place them on a world map. This forms the University of Southampton's entry for the MediaEval 2013 Placing task.

Keywords

Geotagging, Probability Density, Image Annotation

1. INTRODUCTION AND MOTIVATION

2. OVERALL METHODOLOGY

3. EXPERIMENTS

- Mention all features we tried
- Time → better?
- VLAD → similar to CEDD?
- LSH query expansion → too slow, not much better

See table 1 for details on the configuration of the run submissions.

3.1 Run 1: Text+Visual, provided data

3.2 Run 2: Visual only, provided data

3.3 Run 3: Text only, provided data

	Prior	Tags	CEDD	SIFT-LSH	Geonames
Run 1	✓	✓	✓	✓	
Run 2	✓		✓	✓	
Run 3	✓	✓			
Run 4	✓	✓		✓	
Run 5	✓	✓	✓	✓	✓

Table 1: The feature configuration for the run submissions.

3.4 Run 4: Text+Visual, bigger dataset

3.5 Run 5: Text+Visual, provided data with tag boosting

3.6 Results and Discussion

4. CONCLUSIONS AND FUTURE WORK

- LSH query expansion
- Geonames
- VLAD
- GIST
- More features

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