A Lifelogging Approach to Automated Market Research

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Abstract. Market research companies spend large amounts of money carrying out time-intensive processes to gather information about people's activities, such as the place they frequent and the activities in which they partake. Due to high costs and logistical difficulties, an automated approach to this practice is needed.

In this work we present an automated market research system based on computer vision and machine learning algorithms with visual lifelogging data, developed in collaboration with Sponge It, a market research company. Due to some image quality constraints associated with the Sensecam, for our prototype system we developed a visual lifelogging device using an Android smartphone. This device can capture images at higher resolutions and with additional metadata, such as location information. The aim of this project is to analyse large collections of visual lifelogs and to support both ethnographic research and audience measurement for market research. Ethnographic research is supported by high level classification of images to capture the semantics of the users activities (e.g. socialising in bar, shopping, eating). Location, time and other contexts are also analysed, and an interactive interface supports browsing and exploration of the data based on this analysis.

The system can measure audience exposure to specific advertising campaigns, using object recognition algorithms to automatically detect the presence of known logos in life logging images. This combination of concept classification for ethnographic research and object recognition for audience exposure represents a very powerful tool from a market research perspective.

*** This work was carried out while Neil O'Hare was at CLARITY: Centre for Sensor Web Technologies, Dublin City University.

† This work was carried out while Hyowon Lee was at CLARITY: Centre for Sensor Web Technologies, Dublin City University.

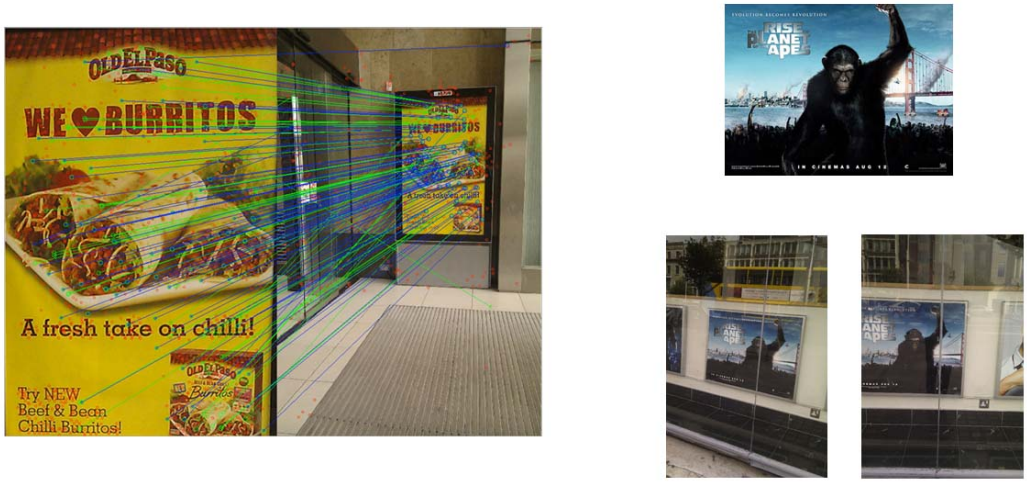

Fig. 1. *The object recognition algorithms make use of local image feature matching (depicted on the left). On the right is an example of results returned from the system based on a query image (top right).*

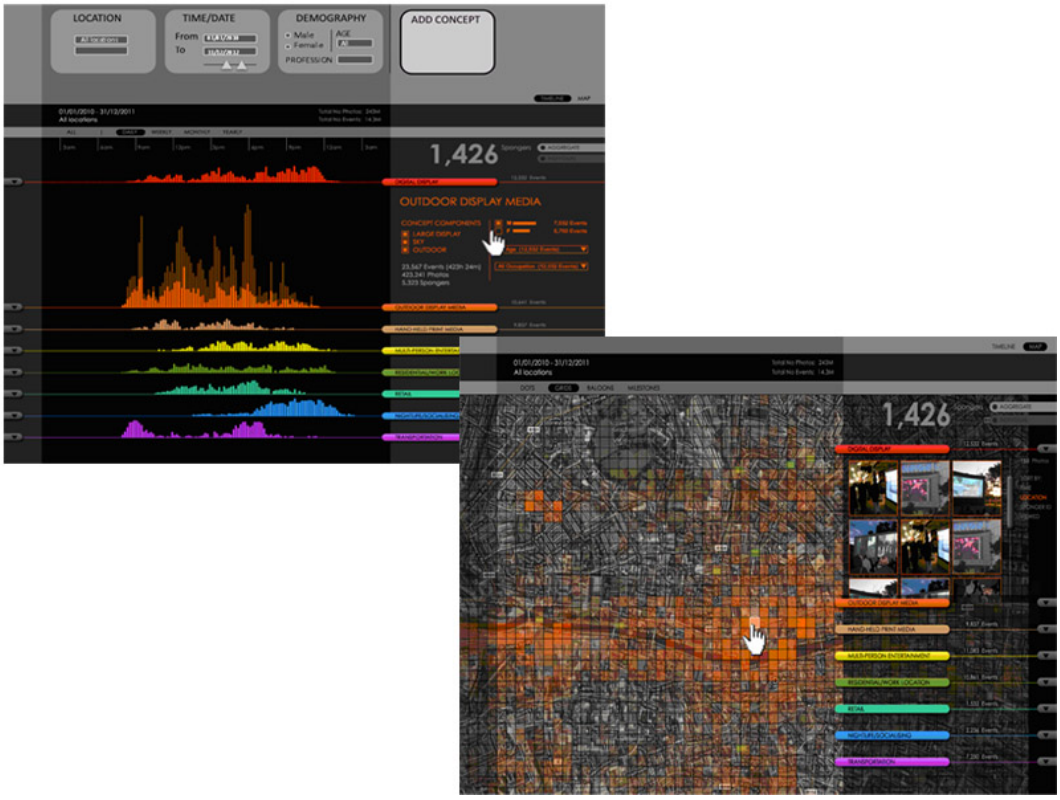

Fig. 2. *Our system interface. Data is presented to a system user based on temporal information (top-left) and spatial information (bottom-right). The temporal based user interface shown is the numbers of detected concepts over the course of several different timeframes, such as hourly, daily, weekly etc. The Spatial based interface displays the locations overlayed on a map where each detected concept was found. The map interface is divided into a grid with the colour coding of each square relating to the frequency of each detected concept in that location.*