

MARKET NEED

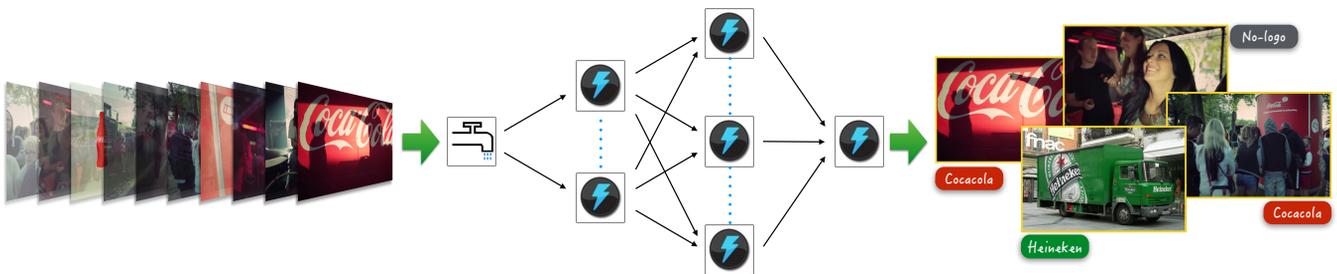
Object detection, especially small object detection, is a well known and studied image analysis challenge. An example of which is finding predefined brands/logos in a large number of images or a continuous image stream in real-time.

Current logo detection applications are generally run in an offline way, and cannot handle a large, continuous image data stream and process it in real time or near real-time.

APPLICABILITY

Currently CeADAR's LookAndLearn project focuses on logo recognition in image data streams. This technology solution can be extended to:

- Detect soft advertisements in both static images and videos,
- Find known objects in a large volumes of video content, such as finding objects in CCTV streams.



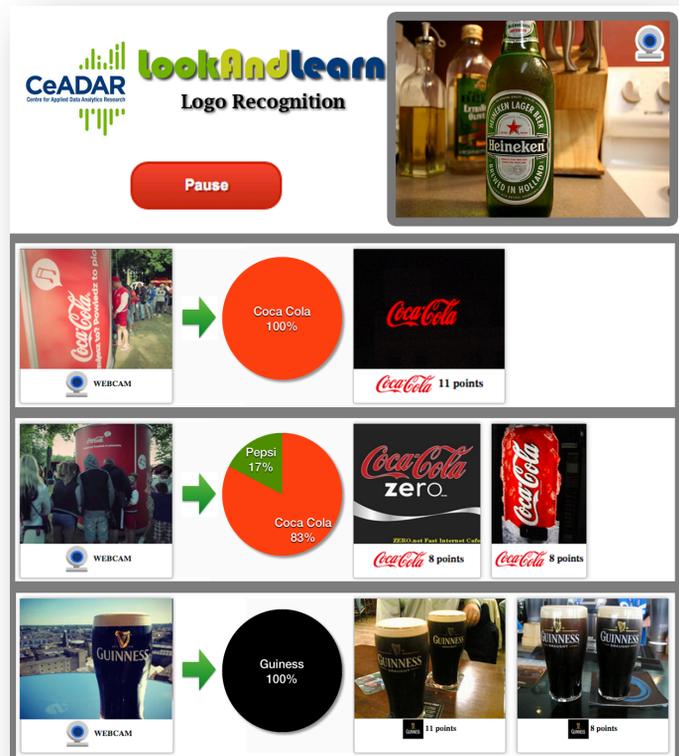
TECHNOLOGY SOLUTION

CeADAR's LookAndLearn project invents a technique for recognizing brands/logos within high-throughput image data streams. For example, a stream of digital photographs or video frames may contain recognizable visual brand logos and trademarks (e.g. Starbucks logo, Coca-Cola logo, Dell logo etc.) and the invention is able to detect occurrences of these logos for a known set of training logos, in a scalable and performant way suitable for real world applications. Furthermore, the logos within the images may comprise only a fraction of the full image, be skewed or partially obscured and the invention will still be able to detect the logo in many cases, albeit with lower accuracy.

For the propose of real time object recognition, the recognition stage is implemented on Apache Storm, the open source data stream processing framework used by companies such as Twitter, Yahoo, Groupon and Klout. Storm provides horizontal scalability and the ability to run over commodity hardware or in the cloud – as data volumes grow or shrink, new servers or cloud instances can be easily provisioned to match requirements.

RESEARCH TEAM

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The screenshot shows the 'lookAndLearn Logo Recognition' interface. It features a 'Pause' button and a video stream of a kitchen. Below the video, there are three rows of detection results, each showing a 'WEBCAM' source, a pie chart of detection confidence, and the detected logo with its score.

Source	Logo	Confidence	Score
WEBCAM	Coca Cola	100%	11 points
WEBCAM	Coca Cola	83%	8 points
WEBCAM	Guinness	100%	8 points