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A Project Report on

“Recognition of On-Premise Signs(OPS) based on Probabilistic Framework using
Visual Saliency”

Submitted in the partial fulfilment of the requirements for the award of the Degree of

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In

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ABSTRACT

The study focuses on developing a probabilistic framework for learning and recognition of On-Premise Sign(OPS) using a visual saliency approach. On-premise signs(OPSs), a popular form of commercial advertising, are widely used in our living life. The OPSs often exhibit great visual diversity (e.g., appearing in arbitrary size), accompanied with complex environmental conditions (e.g., foreground and background clutter). for addressing the problem of real-world OPS learning and recognition, the project incorporates a probabilistic framework based on the distributional clustering, to exploit the distributional information of each visual feature (the distribution of its associated OPS labels) as a reliable selection criterion for building discriminative OPS models. The proposed approach is simple, linear, and can be executed in a parallel fashion, making it practical and scalable for large-scale multimedia applications. To learn an OPS model, the approach first exploits the visual saliency analysis to filter out predominant visual words of the background. After obtaining filtered code words, our approach further chooses the most discriminative visual words of each OPS category to enable real-world OPS recognition. As a summary, the main contributions of this work include to develop a probabilistic framework for real-world object recognition from a communication system perspective. The proposed approach requires no pixelwise object labeling in the learning phase and the recognition scheme is simple, linear, and can be executed in a parallel fashion, use a visual saliency based procedure to reduce noisy visual words while generating the codebook of object categories and to learn reliable object models by employing the distributional clustering to measure the discriminativeness of code words with respect to each object category. Overall the proposed approach will enable a user to maintain an always-on relation to information and personal networks and thereby can access in-situ information by just inputting an image and gain quick access to its relative information, inquire special offers without physically entering the store.