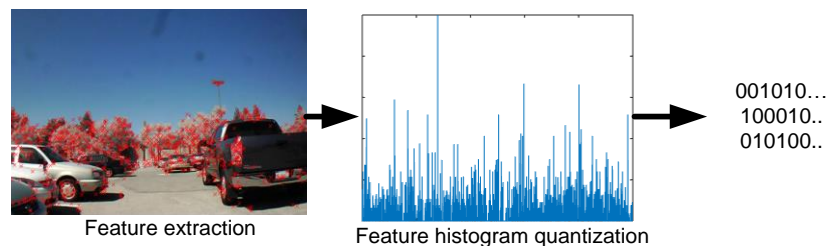

Proposal for a Bachelor/Project Thesis

Topic: Visual Feature Extraction and Histogram Quantization of Multi-view Object Recognition for Distributed Mobile Cameras

Description: Visual feature is one of essential components in object recognition applications, where how to extract and quantize the visual features has significant effect on the recognition accuracy. Recent trends in mobile augmented reality have been able to bring interactions between the physical and virtual world. Moreover, multi-view video data generated by distributed mobile cameras may allow users to detect and recognize objects over multiple sources in real-time.

The multi-view object recognition is performing advantage of accuracy performance over single-view by combining perception information. However, fast making decision for time-critical recognition applications in the multiple distributed mobile sources are opening challenges. Currently, there are number of methods focusing on the recognition accuracy though coding features is one of the key challenges. Among many important problems, the extraction and quantization of visual features can bring a scenario of accuracy performance along with bit-rates measured for transmitting the features from multiple cameras to a base station.



The thesis will consider different types of visual feature (e.g. SIFT and SURF) extractions and quantization methods to form a feature histogram for a given image. Thereafter, taking quantizing the histogram to bits into account by a simple uniform quantization should be performed to show the performance efficiency in terms of the recognition accuracy and bit-rate. In addition, another quantization with non-uniform distribution could be investigated to compare its coding efficiency with the uniform quantization. The thesis is to be written in English.

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Prerequisites: MATLAB programming, digital signal processing

Available: Immediately