

# Head Pose Classification Using a Bidimensional Correlation Filter

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**Abstract:** Correlation filters have been extensively used in face recognition but surprisingly underused in head pose classification. In this paper, we present a correlation filter that ensures the tradeoff between three criteria: peak distinctiveness, discrimination power and noise robustness. Such a filter is derived through a variational formulation of these three criteria. The closed form obtained intrinsically considers multiclass information and preserves the bidimensional structure of the image. The filter proposed is combined with a face image descriptor in order to deal with pose classification problem. It is shown that our approach improves pose classification accuracy, especially for non-frontal poses, when compared with other methods.

**Keywords :** Head pose classification, Bidimensional correlation filter