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HOUGH FOREST FOR EYE'S KEY-POINTS DETECTION



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Abstract

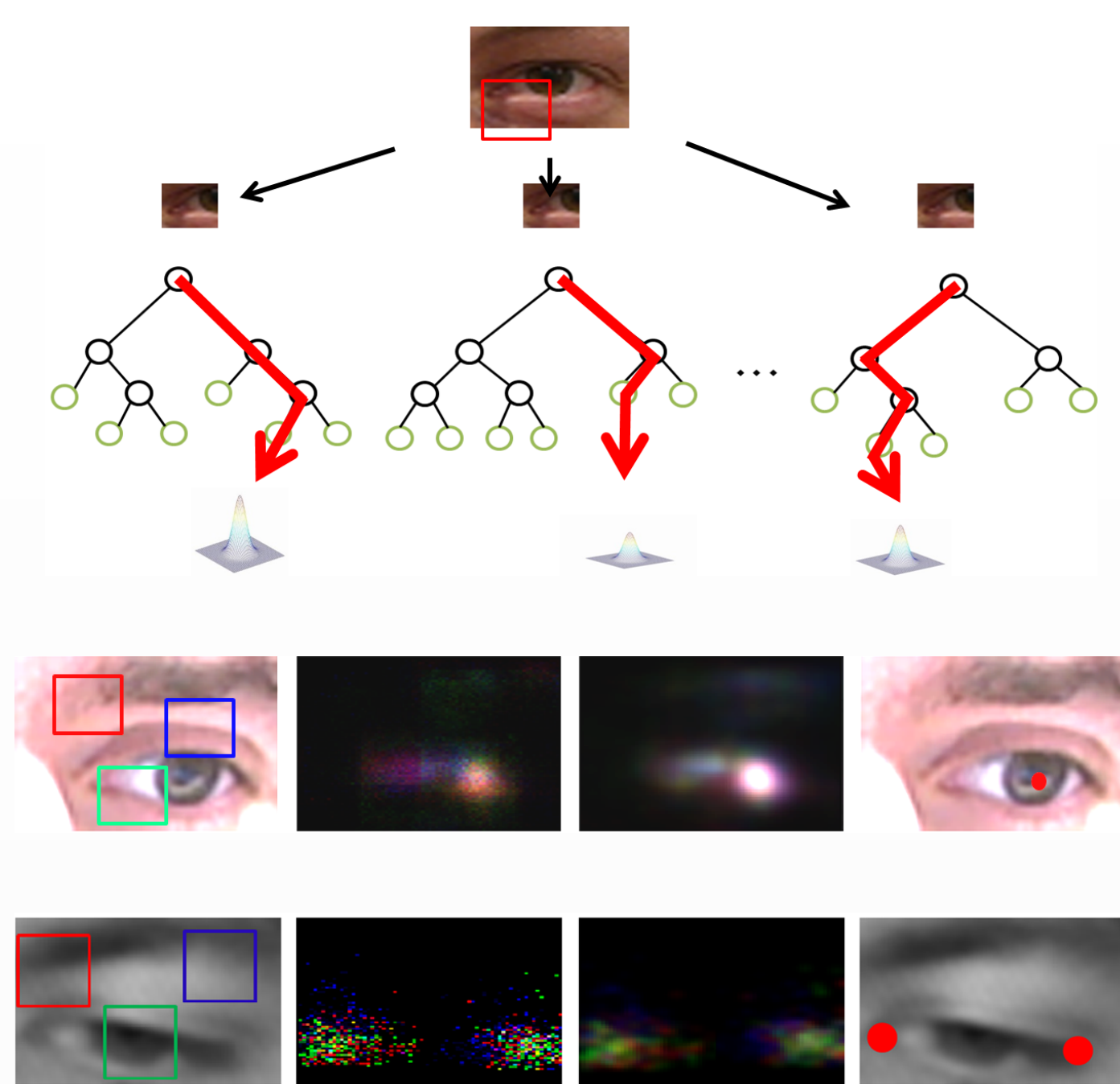
Eyes is one of the most salient feature of the human face. Some key-points such as pupil and corners allow to access to important information which can be used in several computer vision applications. Eyes appearance is very sensible to head pose variations, illumination condition and resolution which decrease the existing method. We propose a robust method based on Hough regression trees evaluated on challenging public datasets.

Contribution

Based on an ensemble of regression trees grouped on a single forest, Our method learns from a very informative training set the spatial relation between the eyes images and eye-pupil 2D location. With no prior information related to scale or head pose, our method can handle

1. Strong head pose variations.
2. Low eyes images resolution.
3. Unfavorable illumination conditions.

Method



Each tree applies at each node a simple binary test until reaching the leaf which stores the output models. By combining all the trees, the forest returns the aggregation of all the informations stored in the leaves.

Results



References

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