基於協作影像評估之人臉識別

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摘 要

在本文中，我們提出一個基於協作影像相似度評估(Collaborative image similarity assessment; CISA)之創新人臉辨識方法。在所提CISA方法中，將未知人臉影像透過線性組合的方式以不同人臉類別訓練影像來呈現；在最後在人臉分類方面，採用相似度評估指標，例如均方根誤差(Root mean square error; RMSE)、結構相似性指標衡量(Structure similarity index measure; SSIM)與相似度評估值(Similarity assessment value; SAV)作為分類的依據。 由於所提CISA方法屬於一階段人臉辨識方法，因此比起兩階段測試樣本表示法(Two-phase test sample representation; TPTSR)具有計算效率高與免除選擇相鄰數M之困擾。在人臉分類方面，本文採用ORL人臉資料庫和FERET人臉資料庫來進行評估。在ORL人臉資料庫的評估上，所提CISA方法可達到與TPTSR方法相近的準確性。不過在FERET人臉資料庫的評估上，所提CISA方法遠高於TPTSR方法約11.7%之辨識率。除此之外，對於每一張測試影像，所提CISA方法須費時276.4ms，而TPTSR方法每一張則需要花費800.8ms，由此可知：所提方法相較於TPTSR具有較高的計算效率。

關鍵詞 : 人臉辨識、協作影像、相似度評估

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