Abstract

Multimodal fusion for biometrics recognition system had gained specific attention nowadays thanks to its remarkable valuable results. For this approach, classification methods have been the basis of important recognition accuracy improvements. The artificial neural networks (ANN) and support vector machines (SVM) belong to this class of methods. This paper presents comparison concerning the performances of the some methods that have been successfully applied to the fusion of scores for multimodal biometric recognition. After recognizing each single modality which was the fingerprint, the face as well as the voice, we recovered three similarity scores. These scores are then introduced into the classification system based on neural networks and on support vector machine techniques. Experimental results demonstrate that the identity established by such an integrated system is more reliable than the established identity by fingerprint recognition system, facial verification system and a voice verification system. Fusion phases are performed at score level. An average rate (= 57.69 %) is obtained by fusion with ANN. While fusion with the SVM gives an average rate equal to (= 63.31 %). A brief introduction is provided regarding the commonly used biometrics, including face, fingerprint
and voice. Comparing Merger methods is made according to criteria of optimization of error rate.

References

7. Arif, fusion de données applications à l'Identification et à l'Authentification thèse de doctorat, Université François Rabelais Tours 2005.
8. Poinsot, Yang, fusion de biométries sans contact paume et visage Article, Université de Bourgogne, 2008.
9. Hammoud, Abidi,face biométries for personal identification multimodal systems.
10. Doublet, Revenu, Olivier, reconnaissance biométrique sans contact de la main intégrant des informations de forme et de texture, France Telecom. 2003
12. Y. Wang, T. Tan, Y. Wang, and D. Zhang, “Combining face and iris biometric for identity verification”, Proc. 4th Int. Conf. on Audio− and Video−Based Biometric Person Authentication (AVBPA) 1, 805–813 (2003)
14. Thibaud, Réseaux de neurones en cascade pour la localisation précise de points caractéristiques du visage Article Université Pierre et Marie Curie. 2008
15. Lorène,la biométrie multimodale: stratégies de fusion de scores et mesures de dépendance virtuelle. thèse de doctorat de l'institut des Télécom paris .2009
17. Chaudhary, multimodal recognition system based on fusion of Palm print, fingerprint and face, International Conference IEEE .2009
18. Chollet, vérification biométrique multimodal: Le projet incitatif GET- BIOMET Telecom paris. 2010
20. M. Kazi and Y. Rode, “multimodal biometric system using face and signature: a score

**Index Terms**

Computer Science  Security

**Keywords**
Multimodal biometric system, Voice, Fingerprint, Face, Recognition, Score-level, Fusion, ANN, SVM..