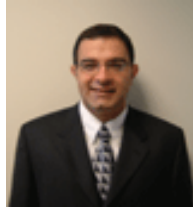


Welcome

Seminar Series of the Department of Computer Science Electrical Engineering Presents

The eyes have it: new directions in ocular biometrics

February 22, 2008. Time 2:00-3:00PM. FH 557.



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Abstract

Biometrics is the multidisciplinary science of discovering or verifying individuals' identities based on their unique physical or behavioral traits. Among different biometric modalities, those based on the human eye are of especial interest due to the high ocular information content; be it visible patterns or behavioral dynamics. Here we present a new modality that utilizes the vascular pattern of the sclera, episclera, and conjunctiva as a biometric indicator. These blood vessels, which can be observed on the white part of the human eye, demonstrate rich and seemingly unique details in visible light, and can be easily imaged using commercially available digital cameras. In this talk we discuss a method to represent and match the textural intricacies of this vascular structure using wavelet-derived features in conjunction with neural network classifiers. Our experimental results, based on the evidence of 50 subjects, indicate the capability of the proposed scheme to characterize the individuality of the ocular surface vascular patterns. This talk will conclude by describing a new related research project that delves into a novel psychometric aspect of the ocular biometrics and discusses the potential of fusing ocular-assessed credibility using blink reflex and pupillometry with conventional biometric identification.

Bio: Reza Derakhshani, Ph.D., joined the UMKC School of Computing and Engineering as an Assistant Professor in 2004. His research focuses on computational intelligence with applications in biometrics and biomedical signal analysis. He earned his Ph.D. and Master's degrees in Computer Engineering and Electrical Engineering respectively from West Virginia University with a biometric research focus. His work in biometrics has resulted in a number of peer-reviewed publications as well as a U.S. patent.