

## Common Feature Discriminant Analysis for Matching Infrared Face Images to Optical Face Images

### Abstract:

In biometrics research and industry, it is critical yet a challenge to match infrared face **images** to optical face **images**. The major difficulty lies in the fact that a great discrepancy exists between the infrared face **image** and corresponding optical face **image** because they are captured by different devices (optical **imaging** device and infrared **imaging** device). This paper presents a new approach called common feature discriminant analysis to reduce this great discrepancy and improve optical-infrared face recognition performance. In this approach, a new learning-based face descriptor is first proposed to extract the common features from heterogeneous face **images** (infrared face **images** and optical face **images**), and an effective matching method is then applied to the resulting features to obtain the final decision. Extensive experiments are conducted on two large and challenging optical-infrared face data sets to show the superiority of our approach over the state-of-the-art.