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**RELIABILITY IN INDIVIDUAL IDENTIFICATION  
BY SKULL-PHOTO SUPERIMPOSITION AND  
MORPHOLOGICAL CATEGORIZATION OF FACE  
PHOTOGRAPHS IN MALAYSIAN MALES  
REPRESENTING THE THREE MAJOR RACES**

**by**

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the requirements for the degree  
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## **ABSTRACT**

Skull-photo superimposition is a scientific method for suggesting identification of unidentified human remains. It acquires especial relevance for countries where dental records are not regularly available for identifying the unidentified dead bodies, e.g. India and Southeast Asian countries that includes Malaysia. A research on the reliability of skull-photo superimposition method conducted in 1994 utilizing Caucasoid skulls and face photographs indicated approximately 10% possible wrong match. Moreover, the equipments used during that research were those available at that time. The reliability of skull-photo superimposition using Malaysian samples deserved to be studied. In this research, a single male skull assessed as Asiatic and 30 face photographs of males, ten each belonging to the three major races in Malaysia, namely Malays, Chinese and Indian, were used. Each male face was represented in two views, frontal and lateral views. Thus, a total number of 60 superimpositions were conducted. The video superimposition device utilized is the state of the art kind which is far advanced compared to the device used during the 1994 research. Furthermore, the relative enlargement of the face photograph was obtained using the distance between Whitnall's tubercles which assured imposing a condition; it was not done in the earlier research. The superimposed images were examined for the match using the guidelines which included studies of the profile flow in addition to landmark correlations. The result indicated that all the 30 male face photographs could be excluded and there was no wrong match among them. Besides, the traits enabling exclusion were studied. Imposing inter-Whitnall's tubercular distance as an enlargement parameter indicated non-correlation at the level of the gnathion in 23 of the samples. This is explainable as due to the longer total facial height in the skull. Asymmetry in superimposed images enabled excluding 5 of the samples in which the skull

length and face length were comparable. Non-correlation in tissue thickness excluded 2 samples. It is shown that imposing an anatomical parameter for obtaining the face enlargement and application of state of the art equipment and methodology led to increase in the reliability of identification using skull-photo superimposition method. In Malaysia, superimposition-based evidence has been accepted in the courts although the expert was from a foreign country. The findings of this research indicate the scope for popularizing skull-photo superimposition as a regular method for identifying the unidentified dead bodies in Malaysia.