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FACES AND IDENTITIES: IS IT POSSIBLE TO MEASURE THE RELIABILITY OF 3D CRANIOFACIAL APPROXIMATIONS?

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The craniofacial approximation (CFA) is largely used in forensic identification of unknown skeletonized bodies. Despite numerous forensic reports have proved successful in identifying a cadaver, it is very hard to assess the reliability of CFA methods.

The present work aims to evaluate the accuracy of CFAs through the comparison of a blind facial approximation with a simultaneous faces array test. The blind CFA was made following the Manchester's protocol.

In our test the CFA was compared with a photographic array of ten faces, included the photo of the individual whom belonged the skull. The positive recognition was evaluated by a total of 320 unfamiliar assessors. During the test a survey was also conducted to evaluate which facial feature mostly drive the process of identification.

The true positive recognition showed extremely poor results. Only the 5% of assessors match the CFA with the target individual photo. The nose was judged the most influential facial feature, but it is also the most problematic anatomical district to approximate due to the lack of strong relationships with the bony part of the skull.

Our results seem to highlight clear limits in positive recognition for CFA based techniques. However, we should consider that positive recognitions of CFAs are usually made by someone in social proximity with the victim. This latter evidence strongly bias any face array test with unfamiliar assessors, keeping the question of CFA reliability still open.