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Sex estimation based on the clavicle measurements in Romanian population using TensorFlow

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In forensic anthropology, sex estimation is the grounds for an accurate identification of unknown human skeletal remains. This part is essential in establishing the individual biological profile. The objective of the study is to enhance the development of forensic anthropology in Romania by creating a formula for assessing sex based on metric analysis of clavicle. A total of 46 cases from Institute of Legal Medicine Iasi, Romania were included in the study. The maximum length of the clavicle, the maximum breadth of sternal end and the maximum breadth of acromial articular surface of the individual which age we knower were taken before autopsy. The method relies on a machine learning ensemble algorithm, TensorFlow, to classify the age of the metric analysis, which was used in this pilot study. The algorithm behind it is based on known algorithms in the field and creating a new one requires advanced research and mathematics. The result provided by the computer is a number between 0 and 1. Under 0.5 she's considered a woman and over a man. For better accuracy you can enter other help values as age or more numeric values that can group the dataset. That way, improving future predictions. The preliminary results obtained are good. The computer finds the correct number of men and women. Yet, the sample is still limited, and more research (more cases) should be done to verify these preliminary results. In the end, the program should be tested on skeletal collections.

Biography

Madalina Diac M.D., graduated University of Medicine and Pharmacy "Gr. T. Popa" in 2014 and Criminalistics Master of the Faculty of Juridical Sciences, University "Al. I. Cuza" Iasi in 2017. In present, Ph. D student in Forensic Medicine at the University of Medicine and Pharmacy "Gr. T. Popa" Iasi, Romania, from 2016. Currently MD, specialty Forensic Medicine, at the Institute of Legal Medicine Iaşi and also as assistant professor at the University of Medicine and Pharmacy "Gr. T. Popa" Iaşi, Romania. Author and co-author of various papers in journals and conferences.

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