An Artificial Intelligence Approach to Individuals' Age Assessment

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Abstract: - A link between patterns of pelvic growth and human life history is supported by the finding that, cross-culturally, variation in maturation rates of female pelvis are correlated with variation in ages of menarche and first reproduction, i.e., it is well known that the human dimensions of the pelvic bones depend on the gender and vary with the age. Indeed, one feature in which humans appear to be unique is the prolonged growth of the pelvis after the age of sexual maturity. Both the total superoinferior length and mediolateral breadth of the pelvis continues to grow markedly after puberty, and do not reach adult proportions until the late teens years. This continuation of growth is accomplished by relatively late fusion of the separate centers of ossification that form the bones of the pelvis. Hence, in this work we will focus on the development of an intelligent decision support system to predict individual's age based on a pelvis' dimensions criteria. Some basic image processing techniques were applied in order to extract the relevant features from pelvic X-rays, being the computational framework built on top of a Logic Programming approach to Knowledge Representation and Reasoning that caters for the handling of incomplete, unknown, or even self-contradictory information, complemented with a Case Base approach to computing.

Key-Words: - Individuals' Age Prediction; Pelvis X-ray Images; Logic Programming; Knowledge Representation and Reasoning; Case Based Computing; Decision Support Systems