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Paper Title:	Innovative Facial Sculpting of the Human Skull Using 3D Scanning Techniques
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Abstract

The identification of missing persons and the resolution of cases involving unidentified human remains have become increasingly critical issues, as the occurrence of these cases continues to increase. To address this, various methods are used to identify these individuals. One effective method involves the identification of human remains through facial reconstruction. Our study advocates for the application of 3D computerized facial reconstruction as a technique for identifying individuals from their skulls. A portable 3D scanner was employed to obtain detailed data from the skulls, making it a versatile tool suitable not only for laboratory and field settings but also for real-time data collection, which offers significant advantages in time-sensitive situations. The facial reconstruction process was carried out using the Facial Soft Tissue Thickness (FSTTs) database, which provides essential information on tissue thickness at various points on the skull, derived from the average facial soft tissue thickness of Northern Thai male donors who contributed their bodies for educational and research purposes. The reconstruction involved the use of 27 skeletal landmarks to guide the process. Autodesk Meshmixer software was used to mark and connect the mesh points of the face, while ZBrush was employed to refine and complete the facial model, resulting in a detailed reconstruction. For this research, the skull samples were obtained from individuals who had donated their bodies for scientific study. Importantly, the researchers did not have access to any photographs or images of the donors during the reconstruction process, ensuring that the work was based solely on the skull's anatomical features. An evaluation of the accuracy of these facial reconstructions is currently ongoing, and the results will be shared in future studies to assess the potential of this technique in solving cases involving unidentified remains
