

## **Abstract**

This paper presents a system for assisting in human identification using dental radiographs. The goal of the system is to archive antemortem (AM) dental images and enable content-based retrieval of AM images that have similar teeth shapes to a given postmortem (PM) dental image. During archiving, the system classifies the dental images to bitewing, periapical, and panoramic views. It then segments the teeth and the bones in the bitewing images, separates each tooth into the crown and the root, and stores the contours of the teeth in the database. During retrieval, the proposed system retrieves from the AM database the images with the most similar teeth to the PM image based on Hausdorff distance measure between the teeth contours. Experiments on a small database show that our method is effective for dental image classification and teeth segmentation, provides good results for separating each tooth into crown and root, and provides a good tool for human identification.

**Keywords:** Biometrics; Dental images; Image segmentation; Human identification; Forensic odontology; Dental image classification