

# **Automatic three-dimensional cephalometric landmark detection system using volume projection rendering image-based reinforcement learning**

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## **ABSTRACT**

This talk presents a new approach to automatic three-dimensional (3D) cephalometric landmark detection system for diagnosis, surgical planning, and treatment evaluation. Manual annotation of such landmarks is a time consumed task and can lead to expert errors. In particular, 3D cephalometric landmark detection methods have been limited to computational complexity and computing performance. We propose a volume projection rendering image-based reinforcement learning(RL) which use various anatomical view with transparency preprocessing. Since the proposed method uses a volume rendering technique, there is no need for prior segmentation to create a 3D mesh object. In the initial or post-op cephalometric diagnosis, it is possible to check the reference planes using the 3D prediction point through acquiring CT data simultaneously.