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Titolo	Supervised and Semi-supervised Multi-structure Segmentation and Landmark Detection in Dental Data : MICCAI 2024 Challenges: ToothFairy 2024, 3DTeethLand 2024, and STS 2024, Held in Conjunction with MICCAI 2024, Marrakesh, Morocco, October 6, 2024, Proceedings / / edited by Yaqi Wang, Dahong Qian, Shuai Wang, Achraf Ben-Hamadou, Sergi Pujades, Luca Lumetti, Costantino Grana, Federico Bolelli
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Nota di contenuto	ToothFairy2: Multi-Structure Segmentation in CBCT Volumes -- Inferior Alveolar Nerve Segmentation in CBCT Images Using Connectivity-based Selective Re-training -- Scaling nnU-Net for CBCT Segmentation -- DiENTeS: Dynamic ENTity Segmentation with Local-Global Transformers -- Enhanced Multi-Structure Segmentation in CBCT Images with Adaptive Structure Optimization -- Weakly-Supervised Convolutional Neural Networks for Inferior Alveolar Nerve Segmentation in CBCT images -- A Multi-Axial Network for Oral Structural Segmentation -- Automatic Multi-Structure Segmentation in Cone Beam Computed Tomography Volumes Using Deep Encoder-Decoder Architectures --

Video Foundation Model for Medical 3D Segmentation -- STS: Semi-supervised Teeth Segmentation -- A Two-Stage Semi-Supervised nnU-Net Model for Automated Tooth Segmentation in Panoramic X-ray Images -- Two-Stage Semi-Supervised nnU-Net Framework for Tooth Segmentation in CBCT Images -- SemiT-SAM: Building a Visual Foundation Model for Tooth Instance Segmentation on Panoramic Radiographs -- Multi-stage Dental Visual Detection Based on YOLOv8: Dental 3D CBCT -- Efficient Semi-Supervised Tooth Instance Segmentation in Panoramic X-rays Using ResUnet50 and SAM Networks -- DAE-Net: Dual Attention Embedding-based Tooth Instance Segmentation Approach for Panoramic X-ray Images -- A Self-Training Pipeline for Semi-Supervised 2D Teeth Instance Segmentation -- Deformable Inherent Consistent Learning Network for Accurate Tooth Segmentation in Dental Panoramic Radiographs -- Semi-Supervised 2D Dental Image Segmentation via Cross Teaching Network -- A Novel Two-Stage Approach for 3D Dental Tooth Instance Segmentation -- 3DTeethLand24: 3D Teeth Landmarks Detection Challenge -- A Two-Stage Framework with Dual-Branch Network for End-to-End 3D Tooth Landmark Detection -- Leveraging Point Transformers for Detecting Anatomical Landmarks in Digital Dentistry -- ToothInstanceNet: Comprehensive Information from Intra-Oral Scans by Integration of Large-Context and High-Resolution Predictions.

Sommario/riassunto

This book constitutes three challenges that were held in conjunction with the 27th International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI 2024, in Marrakesh, Morocco, on October 6, 2024: ToothFairy challenge(ToothFairy2: Multi-Structure Segmentation in CBCT Volumes), Semi-supervised Teeth Segmentation (STS 2024), and the 3DTeethLand (3D Teeth Landmarks Detection Challenge). The 21 papers presented in this volume were carefully reviewed and selected from 28 submissions. ToothFairy challenges focused on the development of deep learning frameworks to segment anatomical structures in CBCTs by incrementally extending the amount of publicly available 3D-annotated CBCT scans and providing the first publicly available fully annotated datasets. The STS Challenge promoted the development of teeth segmentation in panoramic X-ray images and CBCT scans. It also provided instance annotations for different teeth, including pertinent category information. The 3DTeethLand24 Challenge played a key role in advancing automation and leveraging AI to optimize orthodontic treatments. It also aims to tackle the challenge of limited access to data, providing a valuable resource that encourages community engagement in this vital area with potential clinical implications.