Automated metal artifact reduction in dental CBCT using intraoral scan data

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ABSTRACT

In dental cone beam computed tomography (CBCT), metal artifacts caused by patient-related highly attenuated objects, such as implants and crowns, are common and the resulting severe image degradation around teeth makes proper diagnosis difficult. However, metal artifact reduction (MAR) is a very challenging task due to difficulty in handling nonlinear beam hardening effect and scattering.

In this work, automated MAR is achieved by developing three core technologies for digital dentistry; tooth segmentation, registration of oral scans onto CBCT images, and artifact erasing.