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Supplementary Materials



Fig. 1. (a) Registration by FPFH feature matching [?] which fails to achieve precise feature matching. The lines between meshes represent each matched FPFH feature between IOS and CBCT. A large number of IOS crowns are incorrectly matched with the CBCT counterparts. (b) Registration result from our method on the same patient.

Algorithm 1 Mesh Removal

1:	function MESHREMOVAL (IOS, CBCT, numTeeth, N, K, x)
2:	for $i \leftarrow 1$ to numTeeth do
3:	$IOS_i \leftarrow Boundary PCD of IOS tooth number i$
4:	$IOS_i \leftarrow Aligning IOS_i$ in one direction
5:	$CBCT_i \leftarrow Nearest point of CBCT matched to each point in IOS_i$
6:	for $p \leftarrow 0$ to $\operatorname{len}(\operatorname{CBCT}_i)$ do
7:	$\operatorname{CBCT}_i^p \leftarrow \operatorname{each} \operatorname{PCD} \operatorname{of} \operatorname{CBCT}_i$
8:	if $p == len(CBCT_i)$ then
9:	PointsInPath \leftarrow Dijkstra $(CBCT_i^p, CBCT_i^0) $ \triangleright Return all points on
	the shortest path between $CBCT_i^p$, $CBCT_i^0$
10:	else
11:	$PointsInPath \leftarrow Dijkstra(CBCT_i^p, CBCT_i^{p+1})$
12:	$CBCT_i \leftarrow REMOVE(CBCT_i, PointsInPath) \triangleright Remove points in CBCT_i$
13:	$LargestCBCT_i \leftarrow Largest(CBCT_i) \triangleright \text{ Removing points may split the}$
	mesh into multiple segments; the largest segment is most likely the root section.
14:	$\mathbf{return} \text{ array of } LargestCBCT_i$