Supplemental materials for 3DDX: Bone surface reconstruction from a single standard-geometry radiograph via dual-face depth estimation

Table 1. Evaluation results of depth map estimation. † denotes using pre-training. The mean absolute error (MAE) and root mean square error (RMSE) metrics are reported in mm units. For each metric of each bone object, we report the mean(median)±std.

	Femur		Pelvis	
Method	MAE ↓	RMSE ↓	MAE ↓	RMSE ↓
$_{256}\ \mathcal{L}_{si}^{indep}$	2.94(2.36)±2.11	3.70(3.08)±2.36	3.24(3.04)±0.956	4.80(4.53)±1.30
$_{256}\ \mathcal{L}_{casi}^{dep}$	2.88(2.27)±2.29	3.60(2.94)±2.56	2.94(2.76)±0.915	4.53(4.26)±1.32
$_{256}\ \mathcal{L}_{casi}^{indep}$	2.81(2.19)±2.28	3.52(2.86)±2.54	2.92(2.73)±0.909	4.50(4.23)±1.32
$_{256}\ \mathcal{L}_{casi}^{indep}$†	2.78(2.17)±2.27	3.49(2.82)±2.54	2.87(2.69)±0.868	4.47(4.20)±1.29
$_{512}\ \mathcal{L}_{casi}^{indep}$†	2.58(1.99)±2.14	3.22(2.59)±2.40	2.57(2.40)±0.818	4.05(3.77)±1.31
$_{1024}\mathcal{L}_{casi}^{indep}$†	2.54(1.95)±2.16	3.17(2.53)±2.43	2.49(2.31)±0.822	3.93(3.64)±1.31

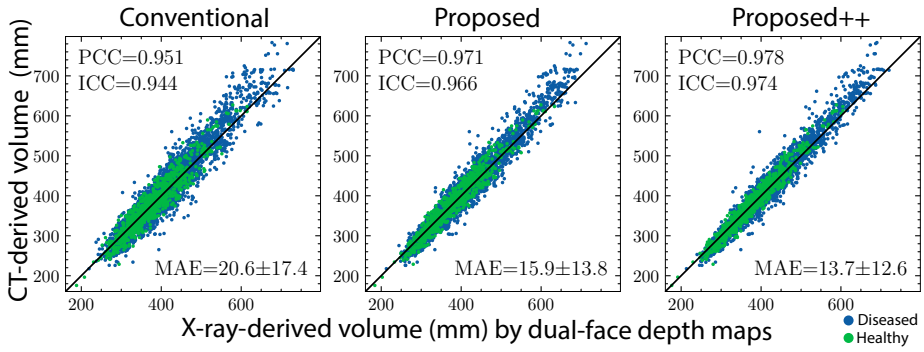

Fig. 1. Scatter plot of the X-ray-derived volume against CT-derived volume. The volume is estimated from X-rays through dual-face depth map subtraction to obtain a volume distribution map (thickness map) to calculate volume. The proposed method with CASI loss outperformed the conventional SI loss.

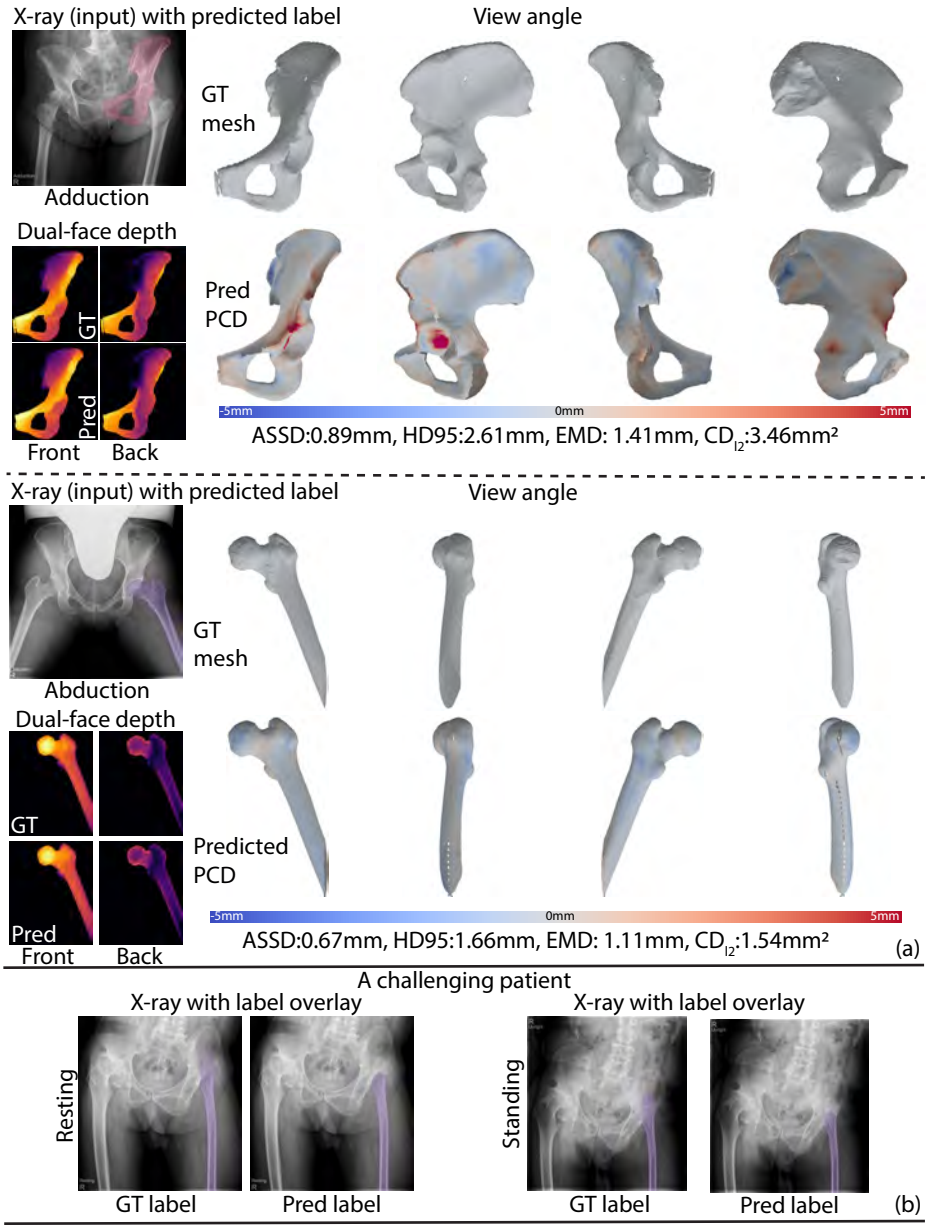

Fig. 2. (a) Visualization of two high-performance samples by the proposed dual-face and CASI loss, using 3D completion. (b) Segmentation failure on a challenging patient.