**Legends:**

**Figure 1.** Flowchart showing the inclusion criteria, exclusion criteria, and distribution of CT scans in the datasets used in this study.

**Figure 2.** Key steps in the proposed future liver remnant (FLR).

**Figure 3.** Successful automated segmentation results of eight functional Couinaud’s liver segments and future liver remnant in various liver conditions of test dataset-1 and test dataset-2.

**Figure 4.** The differences of segmentation results between automated and manual segmentation in test dataset-2. **a.** A case of hepatocellular carcinoma. For the segmentation of Couinaud’ s liver segment, misidentification of segment Ⅴ and Ⅵ occurred around the hepatic lesion. The automated segmentation underestimated the manual segmentation of hepatic lesion. **b.** A case of hepatocellular carcinoma. For the segmentation of Couinaud’ s liver segment, misidentification of segment Ⅱoccurred related to the relatively rare and irregular shape. The automated segmentation underestimated the manual segmentation of hepatic lesion.  **Figure 5.** Bar plot of the average Dice similarity coefficient (DSC) of the segmentation model of eight Couinaud’ segments. Similar segmentation performances were obtained among eight Couinaud’ segments. The whiskers indicate the standard deviation of the average DSC values.

**Figure 6.** Bar plot of the average Dice similarity coefficient (DSC) of the segmentation model in various liver conditions. The DSC differences between healthy livers and hepatic steatosis, hepatic steatosis and candidates for major hepatectomy were statistically significant (*P* < 0.001).

**Figure 7.** Bland–Altman plots of the segmentation model in future liver remnant assessment. The segmentation model slightly underestimated manual segmentations in healthy livers, hepatic steatosis and cirrhosis but slightly overestimated manual segmentation in candidates for major hepatectomy.  **Figure 8.** Bland–Altman plots of the segmentation model in the FLR% assessment. The segmentation model slightly overestimated manual segmentation in test dataset-1 but slightly underestimated manual segmentation in test dataset-2.

**Figure 9.** Comparisons of volumetry at the lobe level. Our results were similar to those obtained by Huang et al. (15), Rusko et al. (16), Butdee et al. (17) and Le et al. (6) with a difference of less than 5%.

**Figure 10.** Boxplots show the absolute difference of FLR% obtained by manual and automated segmentation in test dataset-1 and test dataset-2. All values were within 5%, and the evaluations of resectability between the model and human doctors were considered consistent, except for 3.73% of cases.

**Figure 11.** Examples of successful automated segmentations in candidates for major hepatectomy. **a** A case of cholangiocarcinoma occupying four Couinaud’s liver segments (Ⅷ,Ⅶ,Ⅴ and Ⅵ). **b** A case of hepatic hemangioma occupying three Couinaud’s liver segments (II, Ⅲ and Ⅳ). **c** A case of hepatocellular carcinoma occupying four Couinaud’s liver segments (Ⅷ,Ⅶ,Ⅴ and Ⅵ).