

List of Figures

- 1 An example of histopathological liver tissue images and their segmentation results. The left image illustrates the input, while the right image is the segmentation result. The 'background' class is highlighted in **purple**, the 'tissue' class in **green**, and the 'steatosis' class in **yellow**.
- 2 Image pre-processing applied to the dataset. The splitting and resizing for the annotation data are only applied to the training and validation data while the histopathological image is applied to the training, validation, and testing. For the test data, prediction results undergo a post-processing step prior to evaluation to ensure consistency between the total annotation data and the ground truth.
- 3 Post-processing applied to the output of deep learning model. The predicted output from the model that is trained using pre-processed dataset still outputs fragments of masks therefore resize and merge are needed. Resizing is done using nearest neighbour interpolation.
- 4 The UNet3+ architecture with modified filter count to reduce the size of the trainable parameters which results in a more lightweight deep learning model.
- 5 The model output integration method. The first model is trained on dataset that does not use pre-processing while the second model is trained using dataset with pre-processing and post-processing. The output of the second model goes through post-processing step while the first model does not. The output are then merged together resulting in a final mask.
- 6 Output results and comparison between each scenarios using UNet3+ model. The red box highlights the difference from one image to another.