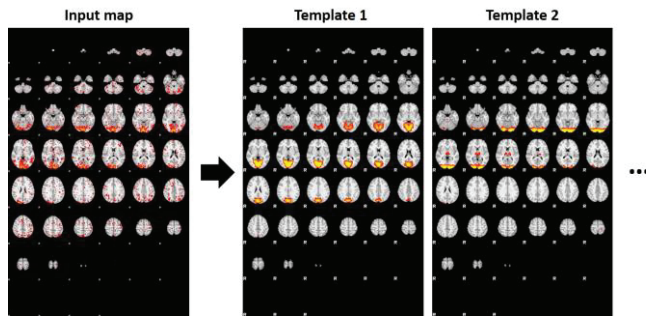
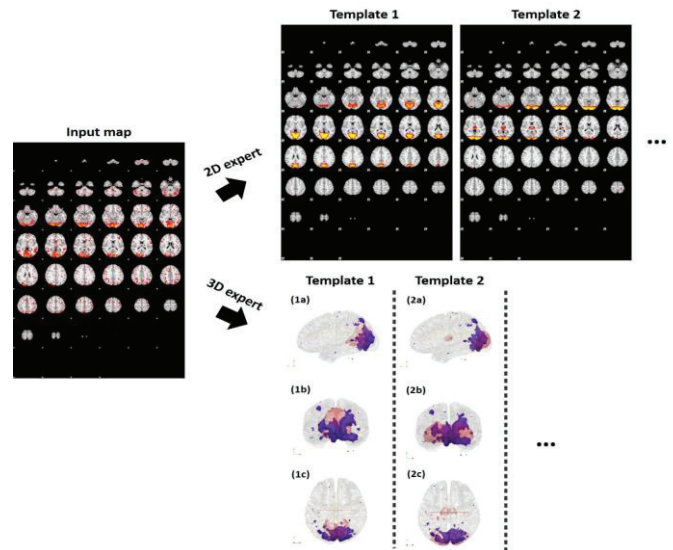


Fig. 14. Illustration of CNN and overlap-based method's performance when differentiating input RSN maps of high spatial overlaps. *Each column represents one instance with 3 rows: the input map, the RSN template with the CNN label and the overlap label. As shown by each instance, all the input maps have relatively high overlap rate with both of the templates ( $\geq 0.10$ ), making the overlap rate hard to predict correctly. However, CNN makes the correct prediction regardless of the high overlap rates.*

### Supplemental Figures:



*Supplemental Fig. 1. Illustration of the fast manual labeling process by expert using 48 informative slices of 2D images. The input map was assigned with label 2 in this case, since according to the visualization, template2 had the most similar spatial pattern distribution with the input map.*



*Supplemental Fig. 2. Comparison between 2D expert labelling and 3D senior expert labelling. 2D expert labelling is fast and intuitive to perform, while 3D senior expert need careful examination, which is more suitable for further justification. In the 3D overlap visualization, 3 different axis views were provided, where blue regions are the input map while red regions are the template map.*