

Automatic Scribble Simulation for Interactive Image Segmentation Evaluation

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Problem

- **Effective interactive image segmentation algorithm** should not be obviously influenced by the **difference of scribbles** labelled by **different users**

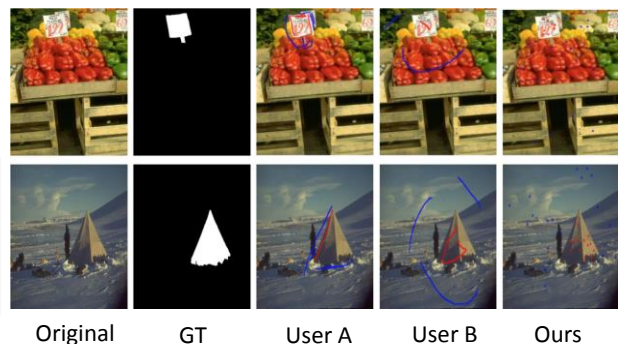
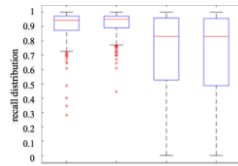
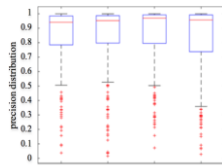
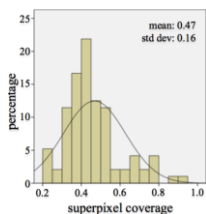
How to provide a comprehensive evaluation ?

Analysis

- **Scribble variety**: indicate five users and values of average intersection rates between the scribbles labelled by different users are quite low
- **Scribble consistency**: intersection rates of the scribbles labelled by users
 - ✓ Superpixel level is higher than pixel level, but not high on background
 - ✓ Superpixel group level is higher than superpixel level, and high enough
- **Distribution of superpixel group coverage**: the normal Q-Q plots indicate normal distribution
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- **Effect of connection in scribble**: weak to interactive image segmentation

Solution

- Determine the values of superpixel group coverage and superpixel coverage according to the distribution



Conclusion

- Propose an automatic scribble simulation approach for interactive segmentation algorithm evaluation
- Obtain similar evaluation results to manually labelled scribbles and avoid serious deviation in both precision and recall