
Supplementary Material of ReCon: Region-Controllable Data Augmentation with Rectification and Alignment for Object Detection

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1 Source Code

The source code implementation is provided in the attached file.

2 Further Analysis of Rectified Regions

We analyzed the relationship between object area and the likelihood of rectification under our proposed Region-Guided Rectification strategy. Specifically, we examined 500 objects identified as requiring rectification and plotted their area distribution using kernel density estimation, as shown in Figure 1. The results reveal that smaller regions are more likely to be rectified. This is because small objects are generally more difficult to synthesize accurately, diffusion models tend to generate artifacts or errors in such regions.

As shown in Table 1 of the main text, our method (ControlNet + ReCon) improves the AP^m metric by 1.4% over the baseline ControlNet, with a more notable improvement compared to AP^l . This indicates that our approach effectively improves the quality of diffusion model generation for small object regions, thus improving data quality and robustness in these challenging scenarios.

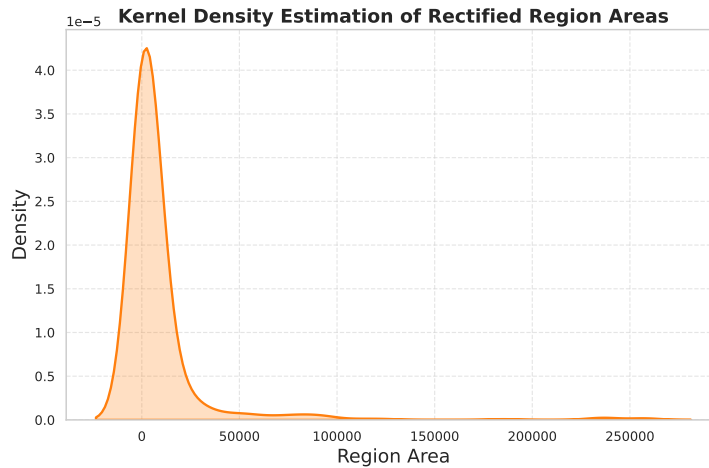


Figure 1: Kernel density estimation of rectified region areas.