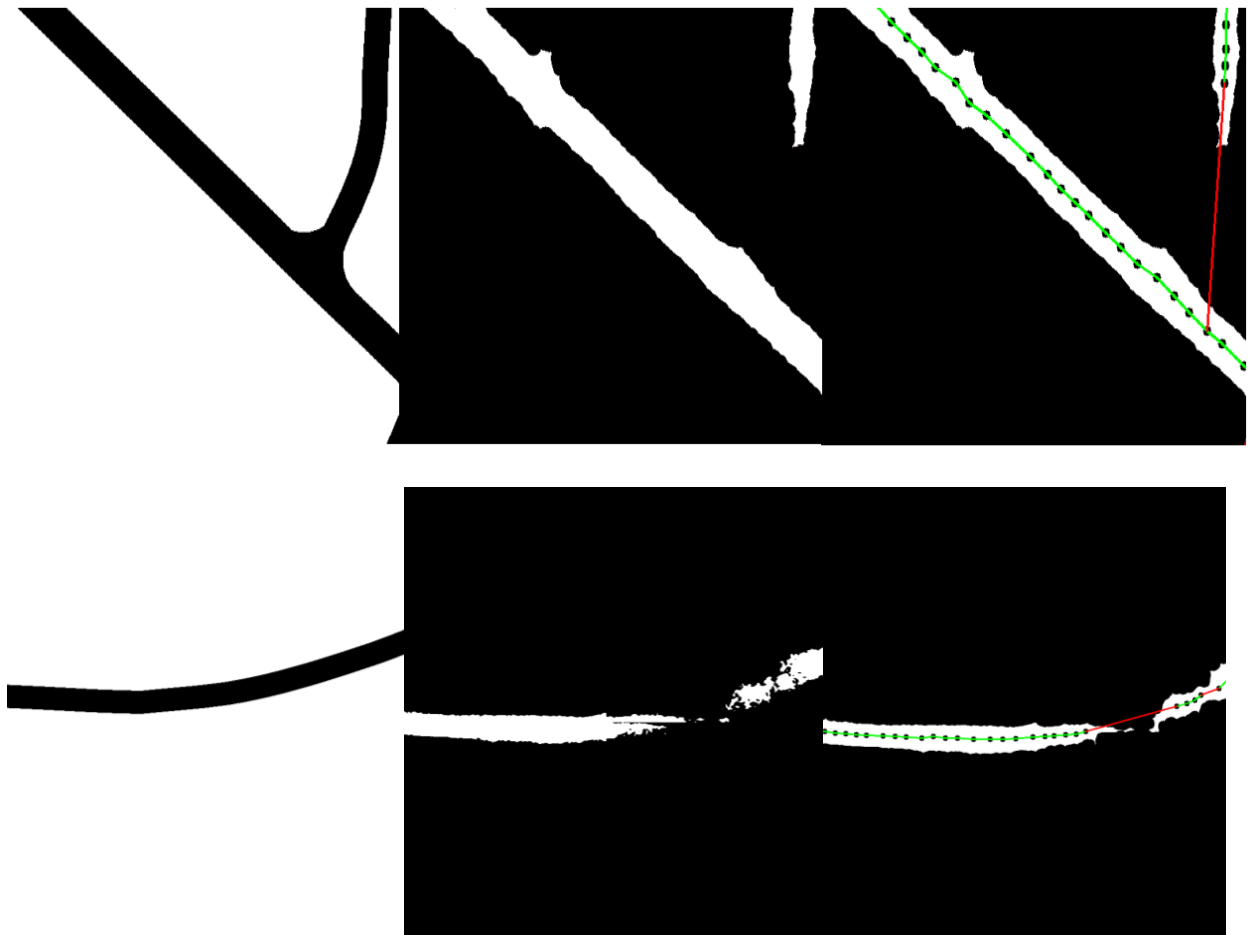


# Appendix: Quality of Road Reconstruction

In this appendix, we provide a few examples to show that our provable curve reconstruction algorithm is capable of handling both outliers and missing edges.

## 1 Inserting missing edges

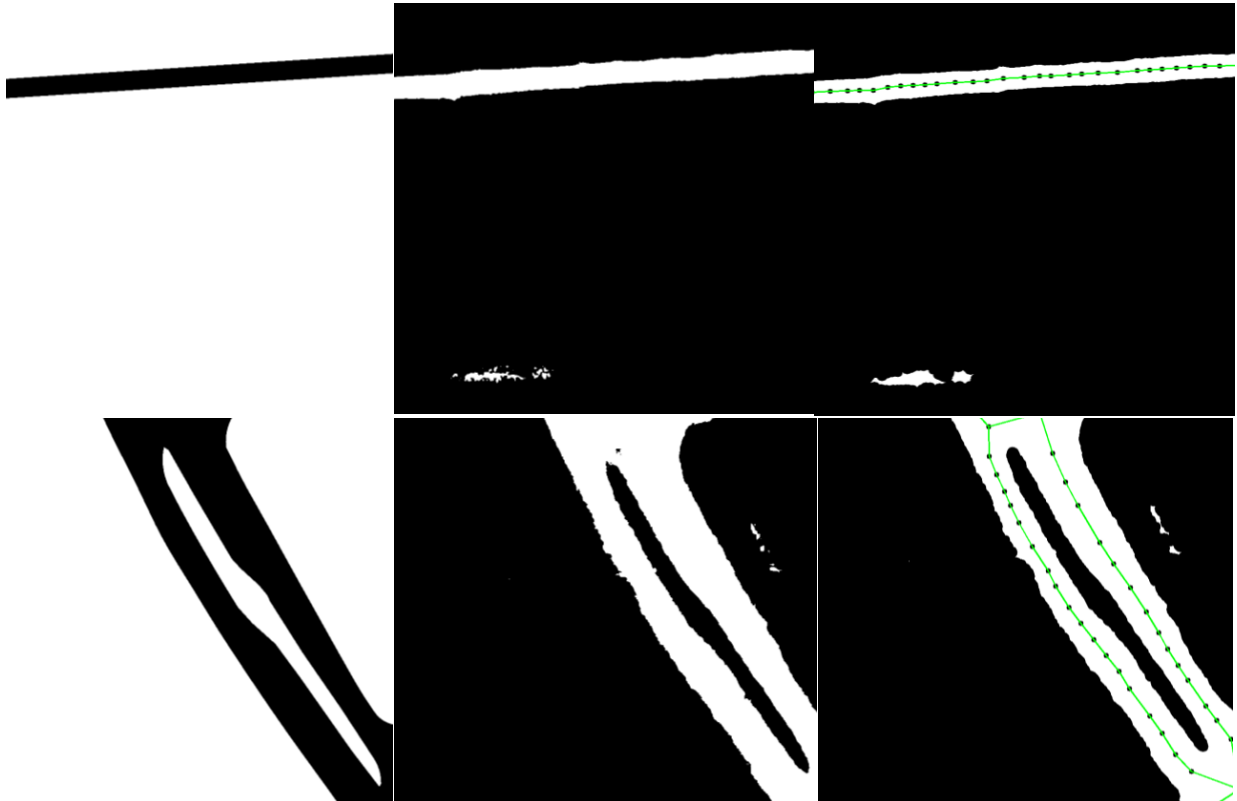
In cases where the segmentation fails to detect roads, and road pixels are incorrectly classified as non-road pixels, our curve reconstruction algorithm is capable of inserting some of the missing edges in the disk intersection graph. In Figure 1, we provide examples where missing edges are inserted.



**Figure 1:** *Inserting missing edges* Left to right: Ground truth; Imperfect Segmentation; Road network, green edges using disk intersection and red edges using curve reconstruction.

## 2 Handling outliers

In cases where the segmentation detects roads pixels incorrectly at locations where roads not present, our curve reconstruction algorithm can handle such outliers. When we have small patches of pixels, which are erroneously detected as roads, our curve reconstruction algorithm, prevents such points from being included in the road network graph. In Figure 2, we provide examples to show that outliers are handled successfully by our algorithm.



**Figure 2:** *Handling outliers* Left to right: Ground truth; Imperfect Segmentation; Road network, green edges using disk intersection. Segmented outlier road pixels are not included in the graph.