

Supplementary Tables

Table 3: Comparison of Different Metrics

Comparison Metric	Value
Mean Deviation (GraphCut vs STL)	15.60 μm
Mean Deviation (GraphCut vs CT)	15.20 μm
Mean Deviation (GraphCut vs Manual Seg.)	24.40 μm
Mean Deviation (STL vs CT)	9.53 μm
Mean Deviation (Manual Seg. vs CT)	22.36 μm
Jaccard Score (GraphCut vs STL)	0.99
Jaccard Score (GraphCut vs CT)	0.99
Jaccard Score (GraphCut vs Manual Seg.)	0.98
Jaccard Score (STL vs CT)	0.99
Jaccard Score (Manual Seg. vs CT)	0.98
Balanced Accuracy (Recoater Strikes)	0.80 ± 0.07
Balanced Accuracy (Recoater Hopping)	0.84 ± 0.06
Balanced Accuracy (Lack of Powder)	0.87 ± 0.07
Jaccard Index (Recoater Strikes)	0.99 ± 0.01
Jaccard Index (Recoater Hopping)	0.97 ± 0.01
Jaccard Index (Lack of Powder)	0.94 ± 0.03

Supplementary Images

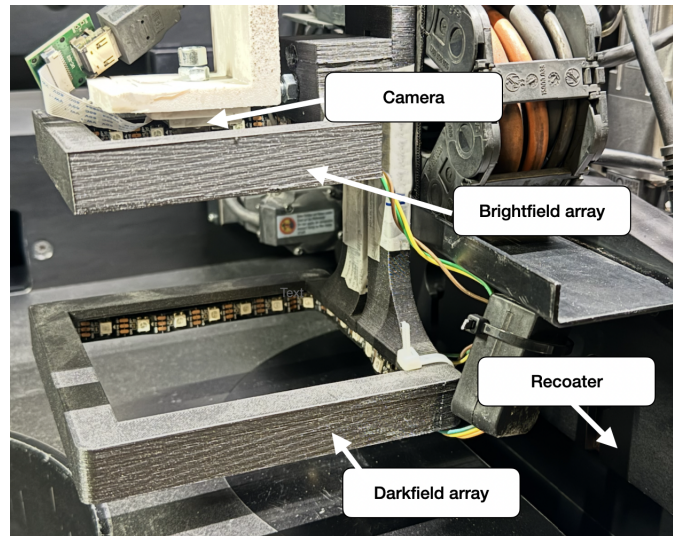


Fig.19: Picture of the experimental setup attached to the recoater on the Aconity Midi+. Two addressable LED strips are placed at different heights from the buildplate to provide brightfield and darkfield lightning.

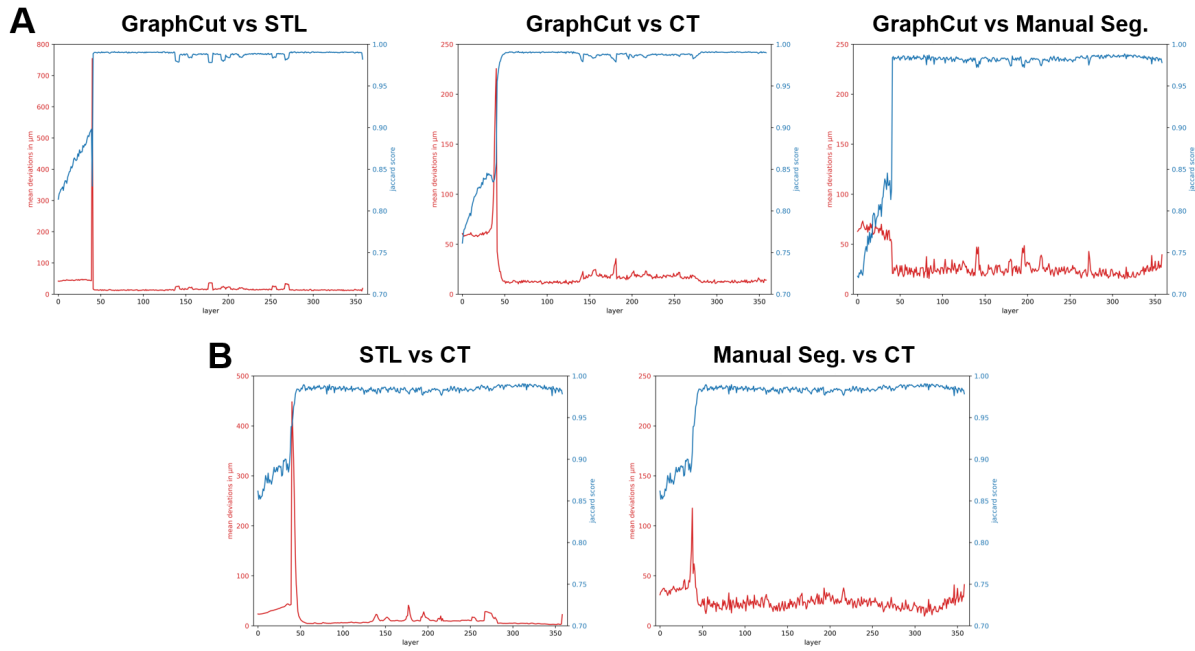


Fig. 20: Mean deviation against layers. A) Grabcut vs STL, CT and Manual segmentation. B) STL vs CT and Manual segmentation vs CT.

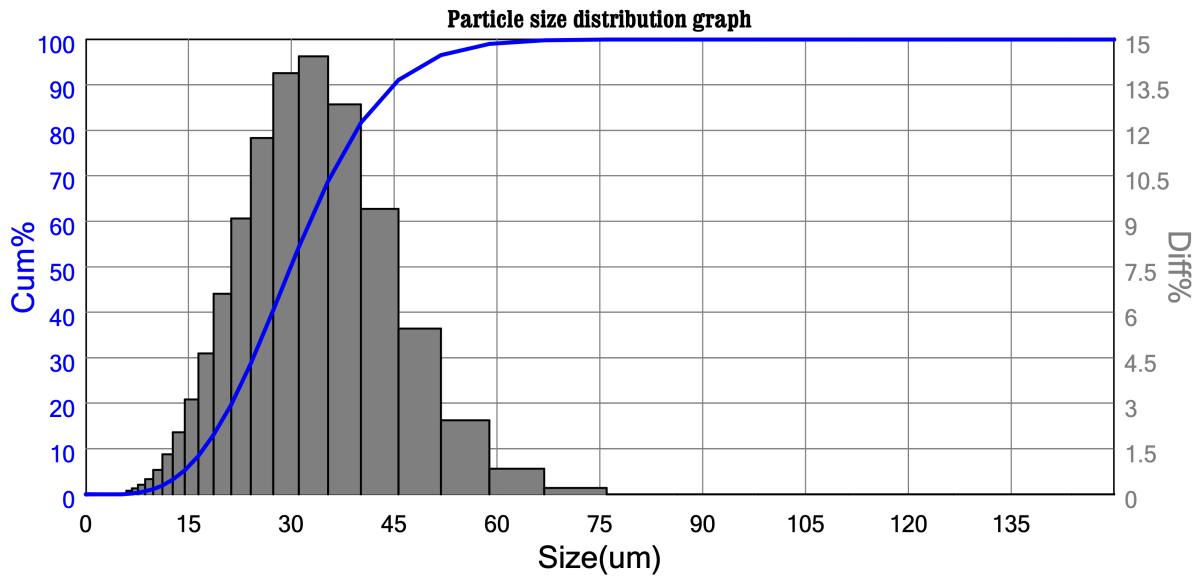


Fig. 21: Powder Density Distribution of the 316L powder used in this work. $D_{50}=29.91\mu\text{m}$, $D_{90}=44.64\mu\text{m}$