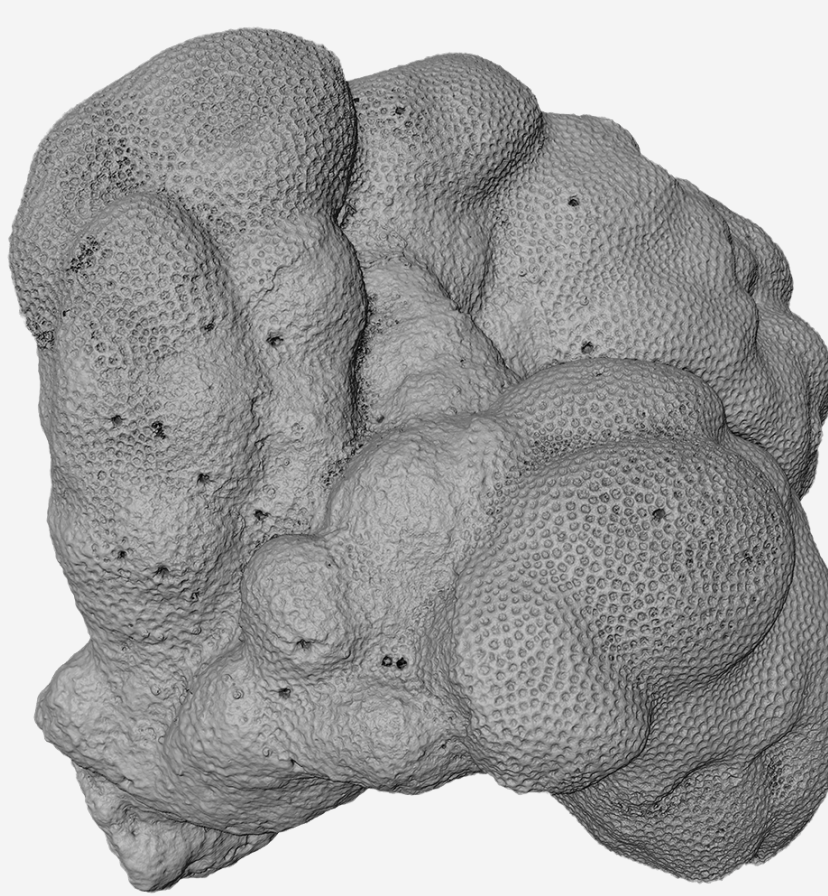
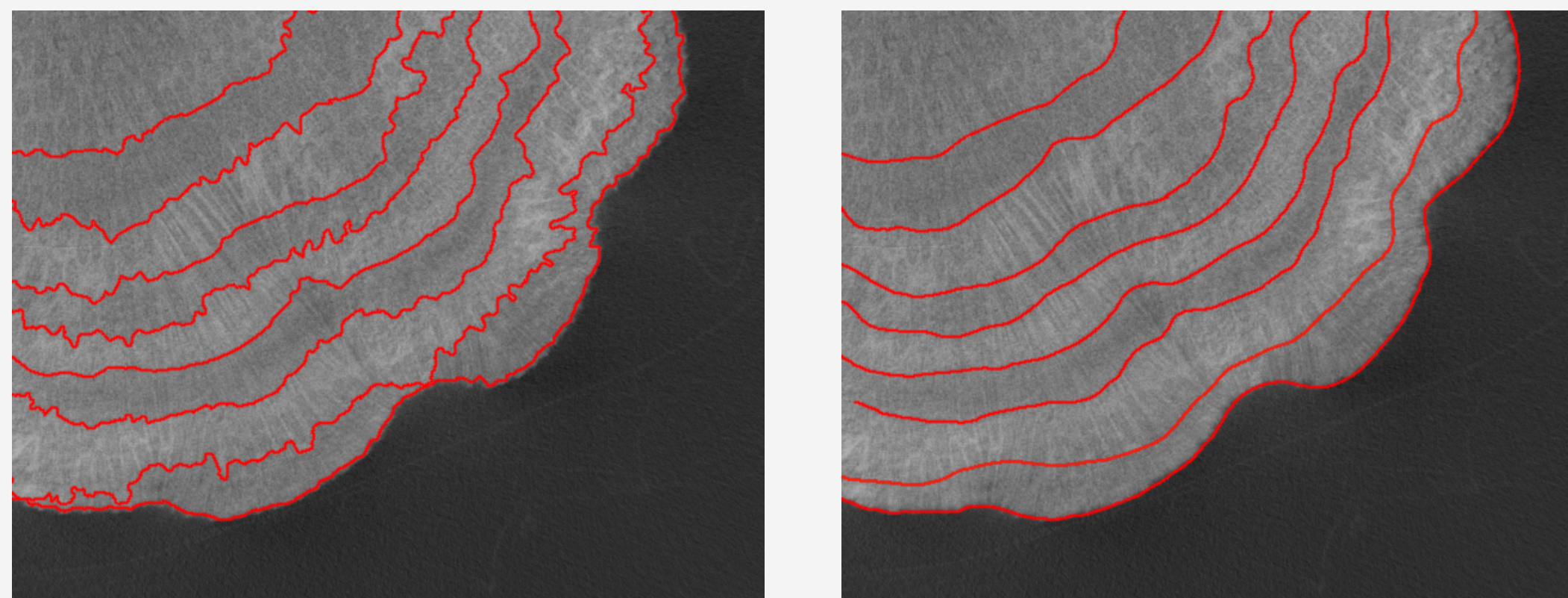


Initial Dataset



Labelling the Data



Discuss the slice selection and extraction process. Outline the chosen methods of manual slice labelling.

Two Dimensional Boundary Extraction

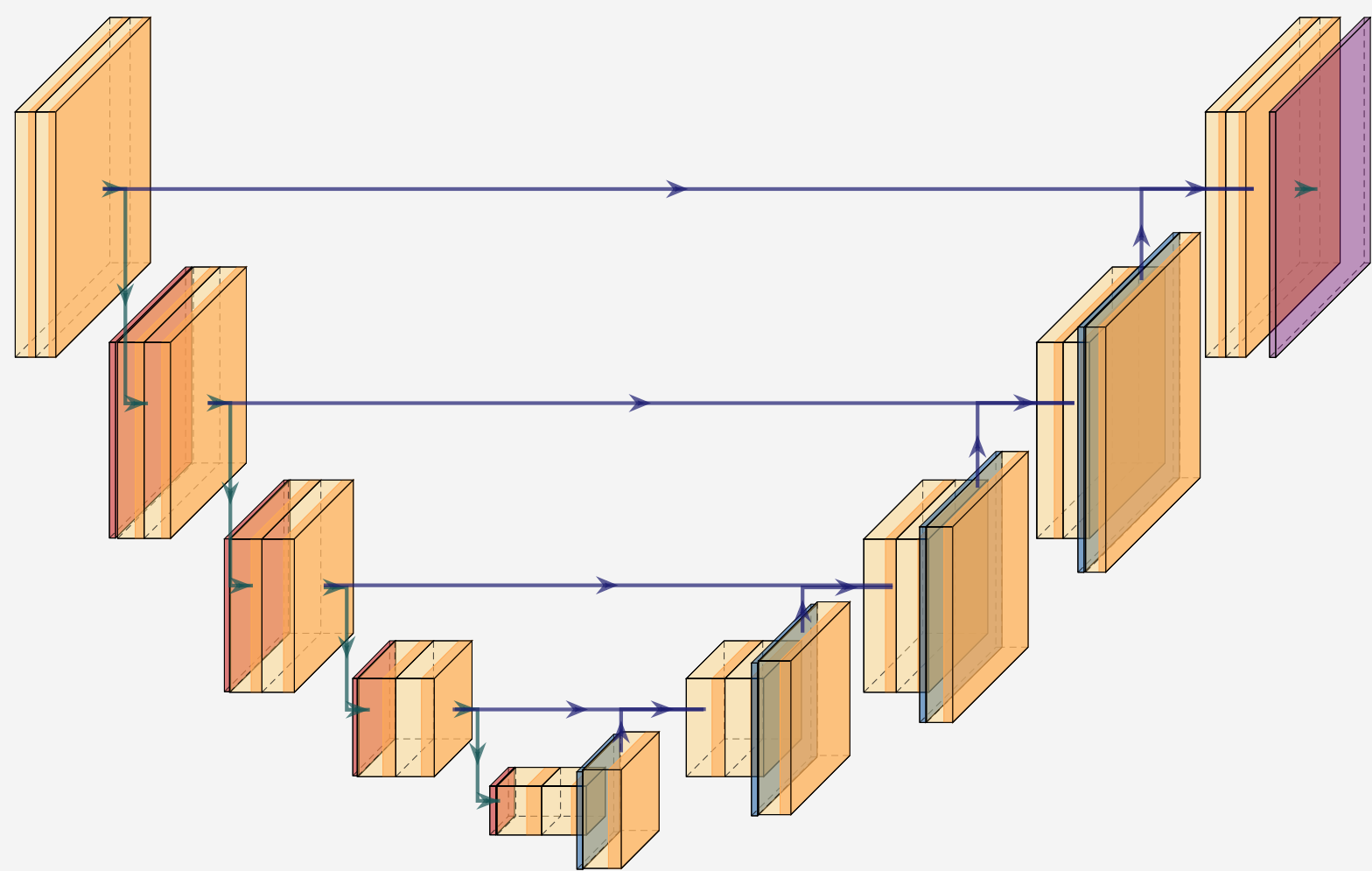
Dataset Curation

Discuss the sliding window technique used. Justify the dataset splits chosen.

Data Augmentation

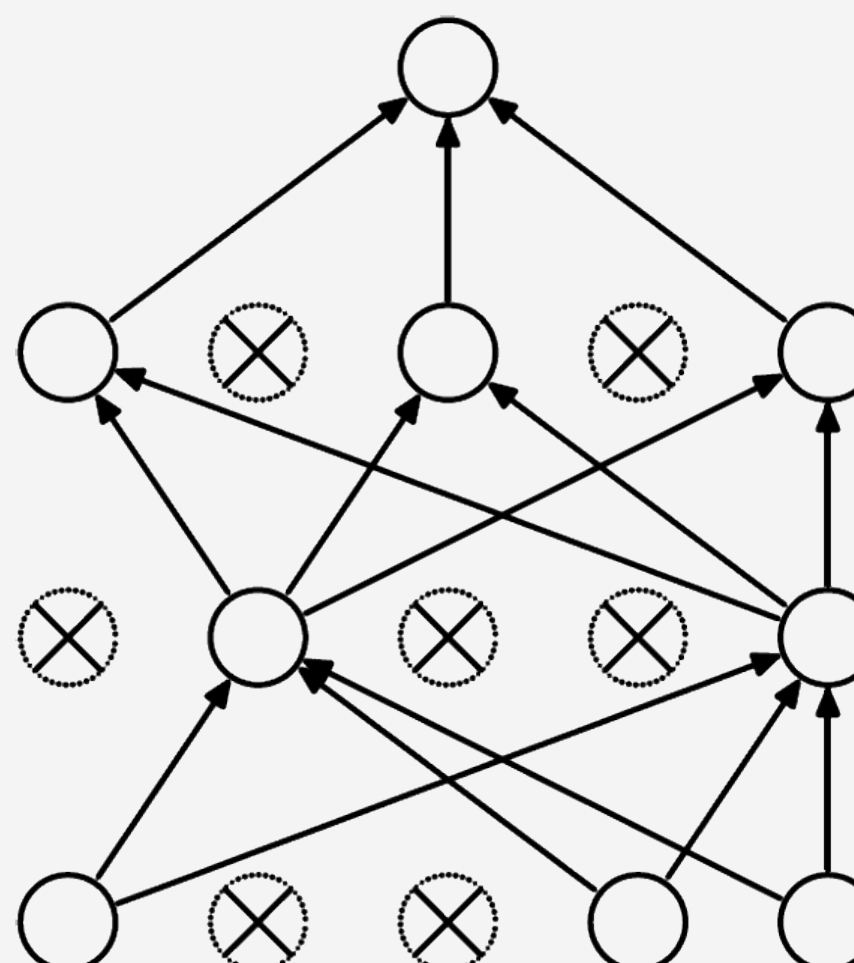
Introduce the Keras class used and discuss acceptable transformations.

Architecture Implementation



Discuss the implementation of the U-Net architecture, early stopping, model checkpointing, metric visualisation, and training using Keras. Introduce the hyperparameters used to train the initial implementation and showcase initial results.

Experimentation



Discuss experiments carried out in order to both improve the performance, and gain a better understanding, of the sub-components implemented. Experiments with hyperparameter optimisation, augmentation, and ablation studies are discussed.

Accuracy Metric Implementation



Discuss the motivation behind, and implementation of, a custom accuracy metric that makes use of thresholding, skeletonization, and the average Euclidean distances between the predicted and ground truth boundaries.

Calcification Rate Estimation

Discuss the estimation of the calcification rate using the boundaries produced by the models implemented.

Three Dimensional Boundary Extraction

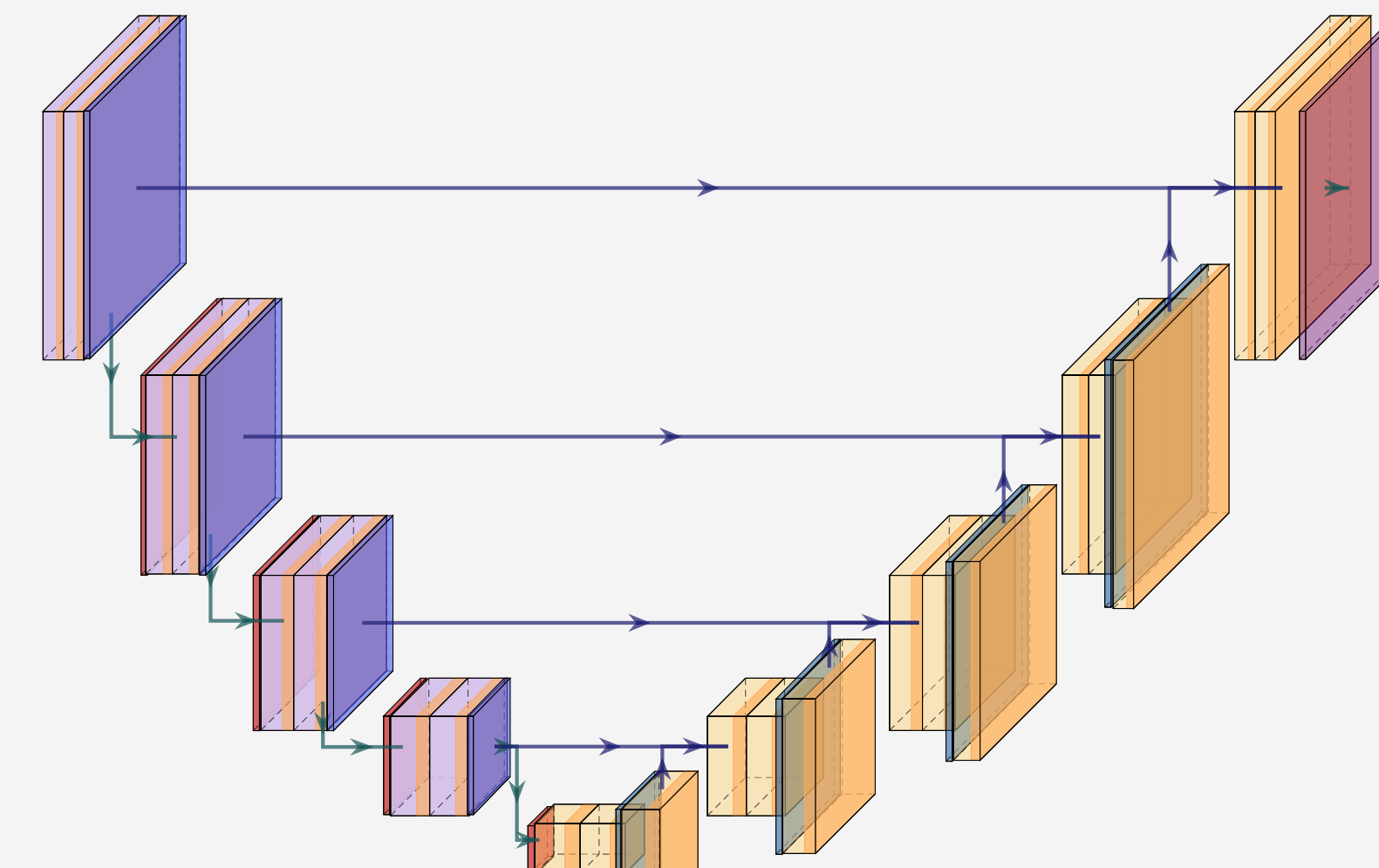
Dataset Curation

Discuss the sliding window technique used. Justify the dataset splits chosen.

Data Augmentation

Introduce the custom data loaders and discuss the custom transformations implemented.

Architecture Modification



Discuss the implementation of multiple modified U-Net architectures designed to process 3D data. Introduce the hyperparameters used to train the initial implementations and showcase initial results.