

CNNCAD For False Positive Reduction

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We are students from the National University of Singapore, working on a lung nodule detection system as part of our own personal project to improve our skills in data handling and processing as well as for greater exposure to such projects.

For the False Positive Reduction track, we employed a series of Data Augmentation steps, such as transverse, translation and rescaling to generate training data. We kept a 1:1 ratio of positive and negative examples in our training set so that the data would not be class skewed.

From the coordinates given in the candidates_V2.csv, we cut 40x40x40 cubes from the original image taking the coordinates as the centre of the cube. These were then fed into a 3D Convolutional Neural Network consisting of 17 layers.

For improvements, more layers could be added into the neural network which would make it more robust to outliers. Also, more data could have been used to train the network, and cubes of varying sizes could be used and an optimal size can further be determined.