# Ovarian tumor detection with CNNs

The medical field is hectic, and any small automation can provide a great service to the industry. This is why we want to leverage convolutional neural networks to automatically detect tumors in ovarian CT scans. With automatic tumor detection, suspected tumors can be flagged and highlighted the moment a scan is complete. This helps those who are being scanned for tumors and those who are being scanned for an unrelated medical issue.

# Methodology

The convolutional neural network that we used was a version of Faster R-CNN trained on our dataset of CT scans of ovarian cancer patients. To reduce training time and accuracy, the pre-trained network vgg-16 was used as a backbone. The model was then evaluated for Precision and Recall. Precision is a measure of the rate at which the model correctly identifies positive examples. Recall is the rate of false positives.

# Results

Table

Description automatically generated

The best performing model had an accuracy of 0.5999 and a recall of .7189

# Conclusion

As is shown by the results, the model’s accuracy is not where it needs to be at. Especially in the medical field where a false positive in the scope of cancer detection can be really scary for a person. The model is currently being held back by poor labeling in the training data. If the model is trained on a better dataset in the future, precision and recall have been shown to be able to go up to .91 and .89 in similar applications!