# Supplementary Material

## 1 SUPPLEMENTARY TABLES

**Table S1.** Hyper-parameters grid for optimization.

| Model | Hyper-parameter: [range] |
|---|---|
| One-vs-Rest SVM | C: [0.01,1,10,100,1000]<br>gamma: [1,0.1,0.001,0.0001]<br>kernel = ['rbf'] |
| Random Forest | bootstrap: ['True','False']<br>min_samples_leaf: [3, 4, 5, 6]<br>n_estimators: [100, 200, 300, 500, 1000]<br>min_samples_split: [8, 10, 12]<br>multi_class='ovr' |
| Logistic Regression | penalty: [l1]<br>Solver: ['liblinear']<br>multiclass = ['ovr']<br>max_iter = [100,150] |
| Select KBest | k: [5,10,15,20,25,30,40,50,60,70,80,90,100,110,120] |

C: regularization parameter. RBF: Radial Basis Function kernel. OVR: One-vs-Rest.

**Table S2.** Full list of radiomics selected. This is an approximate listing, numbers may vary according to the figure 3

| Radiomics | Type | Region | Phase | Weight |
|---|---|---|---|---|
| Sphericity | Shape | LVMYO | ES | 4.9 |
| Long Run High Gray Level Emphasis | GLRLM | LV | ES | 4.6 |
| Sphericity | Shape | LVMYO | ED | 3.6 |
| Surface Area to Volume Ratio | Shape | LVMYO | ES | 3.6 |
| Gray Level Non Uniformity | GLSZM | LV | ES | 3.4 |
| Minimum | First Order | LVMYO | ED | 3.4 |
| Least Axis | Shape | LV | ED | 2.5 |
| Large Area Low Gray Level Emphasis | GLSZM | LVMYO | ES | 3.0 |
| Volume | Shape | LV | ED | 2.9 |
| Coarseness | NGTDM | LV | ES | 2.2 |
| Skewness | First Order | LV | ES | 2.8 |
| InverseVariance | GLCM | LVMYO | ES | 2.8 |
| Skewness | First Order | LVMYO | ES | 2.6 |
| Surface Area to Volume Ratio | Shape | LV | ED | 2.6 |
| Percentile90 | First Order | LVMYO | ED | 2.6 |
| Contrast | NGTDM | LV | ES | 2.5 |
| Large Area High Gray Level Emphasis | GLSZM | LVMYO | ED | 2.4 |
| Low Gray Level Run Emphasis | GLRLM | LVMYO | ED | 2.4 |
| Long Run High Gray Level Emphasis | GLRLM | LV | ED | 2.4 |
| Minimum | First Order | LV | ED | 2.4 |
| Cluster Shade | GLCM | LV | ES | 2.3 |
| Max 2Ddiameter Slice | Shape | LV | ED | 2.2 |
| Entropy | First Order | LVMYO | ED | 2.2 |
| Large Area Emphasis | GLSZM | LVMYO | ED | 2.2 |
| Large Area High Gray Level Emphasis | GLSZM | LV | ES | 2.0 |
| Minimum | First Order | LV | ES | 2.0 |
| Percentile10 | First Order | LVMYO | ES | 2.0 |
| Large Area High Gray Level Emphasis | GLSZM | LVMYO | ES | 2.0 |
| Inverse Difference Moment Normalized | GLCM | LVMYO | ED | 2.0 |
| Surface Area to Volume Ratio | Shape | LVMYO | ED | 2.0 |
| Entropy | First Order | LVMYO | ES | 2.0 |
| Large Area Emphasis | GLSZM | LVMYO | ES | 2.0 |
| Elongation | Shape | LV | ES | 2.0 |
| Large Area Low Gray Level Emphasis | GLSZM | LVMYO | ED | 2.0 |
| Max 3Ddiameter | Shape | LV | ES | 2.0 |
| Zone Entropy | GLSZM | LVMYO | ES | 1.8 |
| Long Run High Gray Level Emphasis | GLRLM | LVMYO | ED | 1.8 |
| Low Gray Level Zone Emphasis | GLSZM | LVMYO | ES | 1.8 |
| Informal Measure of Correlation1 | GLCM | LVMYO | ED | 1.8 |
| Least Axis | Shape | LVMYO | ED | 1.8 |

**Table S3.** Full list of radiomics extracted. Note that for each radiomic feature, we obtain double (LV, LVMYO) and double (ED,ES). Therefore, only 105 are listed, a total of 420 (105x4) were extracted.

| Type | Radiomics |
|---|---|
| Shape | Volume |
| | Surface Area |
| | Surface Area to Volume Ratio |
| | Sphericity |
| | Max3D diameter |
| | Max2D diameter Slice |
| | Max2D diameter Column |
| | Max2D diameter Row |
| | Major Axis |
| | Minor Axis |
| | Least Axis |
| | Elongation |
| | Flatness |
| First Order | Energy |
| | Total Energy |
| | Entropy |
| | Minimum |
| | Percentile 10 |
| | Percentile 90 |
| | Maximum |
| | Mean |
| | Median |
| | Interquartile Range |
| | Mean Absolute Deviation |
| | Robust Mean Absolute Deviation |
| | Root Mean Squared |
| | Skewness |
| | Kurtosis |
| | Variance |
| | Uniformity |
| GLCM | Autocorrelation |
| | Joint Average |
| | Cluster Prominence |
| | Cluster Shade |
| | Cluster Tendency |
| | Contrast |
| | Correlation |
| | Difference Average |
| | Difference Entropy |
| | Difference Variance |
| | Joint Energy |
| | Joint Entropy |
| | Informal Measure of Correlation1 |
| | Informal Measure of Correlation2 |
| | Inverse Difference |
| | Inverse Difference Normalized |
| | Inverse Variance |
| | Maximum Probability |
| | Sum Average |
| | Sum Entropy |
| | Sum of Squares |
| | Inverse Difference Moment |
| | Inverse Difference Moment Normalized |
| GLSZM | Small Area Emphasis |
| | Large Area Emphasis |
| | Gray Level Non Uniformity |
| | Gray Level Non Uniformity Normalized |
| | Size Zone Non Uniformity |
| | Size Zone Non Uniformity Normalized |
| | Zone Percentage |
| | Gray Level Variance |
| | Zone Variance |
| | Zone Entropy |
| | Low Gray Level Zone Emphasis |
| | High Gray Level Zone Emphasis |
| | Small Area Low Gray Level Emphasis |
| | Small Area High Gray Level Emphasis |
| | Large Area Low Gray Level Emphasis |
| | Large Area High Gray Level Emphasis |
| GLRLM | Short Run Emphasis |
| | Long Run Emphasis |
| | Gray Level Non Uniformity |
| | Gray Level Non Uniformity Normalized |
| | Run Length Non Uniformity |
| | Run Length Non Uniformity Normalized |
| | Run Percentage |
| | Gray Level Variance |
| | Run Variance |
| | Run Entropy |
| | Low Gray Level Run Emphasis |
| | High Gray Level Run Emphasis |
| | Short Run Low Gray Level Emphasis |
| | Short Run High Gray Level Emphasis |
| | Long Run Low Gray Level Emphasis |
| | Long Run High Gray Level Emphasis |
| NGTDM | Coarseness |
| | Contrast |
| | Busyness |
| | Complexity |
| | Strength |
| GLDM | Small Dependence Emphasis |
| | Large Dependence Emphasis |
| | Gray Level Non Uniformity |
| | Dependence Non Uniformity |
| | Dependence Non Uniformity Normalized |
| | Gray Level Variance |
| | Dependence Variance |
| | Dependence Entropy |
| | Low Gray Level Emphasis |
| | High Gray Level Emphasis |
| | Small Dependence Low Gray Level Emphasis |
| | Small Dependence High Gray Level Emphasis |
| | Large Dependence Low Gray Level Emphasis |
| | Large Dependence High Gray Level Emphasis |