**Table S1** The related parameter settings for replication studies.

|  |  |  |  |
| --- | --- | --- | --- |
| **PET/CT Acquisition Parameter Settings** | resolutionvoxel size (mm3) | **PET**168 x 168 x 1724.06 x 4.06 x 5 | **CT**512 x 512 x 1721.37 x 1.37 x 5 |
| **Feature Extraction Parameter Settings** |  | **PET** | **CT** |
|  | voxelArrayShift | 0 (default) | 1000 |
|  | resampledPixelSpacing (mm3) | 1 x 1 x 1 | 2 x 2 x 2 |
|  | FBW | 0.25 (SUV) | 25 (HU) |
|  | padDistance | 5 (default) | 10 |
|  | geometryTolerance | 0.001 | 1e-16 (default) |
|  | Interpolator | sitkBSpline | sitkBSpline |
| **Feature Selection Parameter Settings** | **Multivariant** |  |  |
|  |  | # of sub datasets (k) | 30 |
|  |  | classifier | random forest |
|  |  | n\_estimators | 100 |
|  |  | feature importance | > 0.01 |
|  |  | intersection threshold | 5 |
|  | **Relevancy-based (univariant)** |  |  |
|  |  | classifier | BalancedBagging |
|  |  | base classifier | Adaboost |
|  |  | n\_estimators | 11 |
|  |  | boostrap | True |
|  | **Non-redundancy based (univariant)** |  |  |
|  |  | correlation method | Pearson correlation |
|  |  | P-value | <0.05 |
|  |  |  |  |
| **Model Construction Parameter Settings** |  | classifierbase classifiern\_estimators | BalancedBaggingAdaboost11 |
| **Statistical Analysis Parameter Settings** | **LIME model** | classifierbase classifieralgorithmboostrapn\_estimatorsrandom-stateoob\_scoresampling strategyverbosewarm\_start | BalancedBaggingAdaboostSAMME.RTrue110Falseauto0False |
|  | **Correlation Analysis** | Pearson Correlation method and Point-Biserial Correlation method |
| **Original Dataset Split Ratio** | Training Cohort: Independent Validation Cohort | 6:4 |
| **Software Information** |  | PythonPyRadiomicsSklearn | 3.6.42.0.10.23.2 |