**Supplementary Materials**

**Doc. S1: Radiomic feature extraction**

1. **First Order Features**
   1. **Indices from shape**

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* 1. **Indices from histogram**

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* 1. **Conventional Indices**

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1. **Texture Features**
   1. **GLCM definition**

The grey level co-occurrence matrix (GLCM) takes into account the arrangements of pairs of voxels to calculate textural indices.









* 1. **NGLDM definition**

The neighborhood grey-level different matrix (NGLDM) corresponds to the difference of grey-levels between one voxel and its 26 neighbours in 3 dimensions.



 

* 1. **GLRLM definition**

The grey-level run length matrix (GLRLM) gives the size of homogeneous runs for each grey-level.























* 1. **GLZLM definition**

The grey-level zone length matrix (GLRLM) provides information on the size of homogeneous zones for each grey-level in 3 dimensions.























**Doc. S2: Radiomic signature calculation formula**

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**Table S1: Used R Packages**

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| Package Name | Usage Description |
| “glmnet” | Lasso feature selection approach and logistic regression model building  https://cran.r-project.org/web/packages/glmnet/ |
| “Hmisc” | Harrell’s C-Index calculations  https://cran.r-project.org/web/packages/Hmisc/index.html |
| “rms” | Decision curves analysis and calibration curves  https://cran.r-project.org/web/packages/rms/index.html |
| “ggplot2” | General plotting  <https://cran.r-project.org/web/packages/ggplot2/index.html> |