

Supplementary Table S1. Final optimized hyperparameters for each Random Forest model

Model	Features Used	n_estimators	max_depth	min_samples_split	min_samples_leaf
Model 1	Clinical and CT – Full Feature Set	500	12	4	2
Model 2	Clinical and CT – Selected Features Only	400	10	3	1
Model 3	Radiomics – All Extracted Features	800	15	5	2
Model 4	Radiomics – Filtered Key Features	600	14	4	2
Model 5	Combined – Selected CT, Clinical, and Radiomic Features	700	12	3	1

(Grid search ranges: *n_estimators* = 100–1000, *max_depth* = 3–20, *min_samples_split* = 2–10, *min_samples_leaf* = 1–5. AUC used as optimization metric.)