Appendix 1 Evaluation of the CT characteristics

**Figure S1** Distance to costal pleura (peripheral/non-peripheral). (A) Peripheral nodules: The distance to costal pleura was <1/3 from total distance hilum-costal pleura; (B) non-peripheral: the distance to costal pleural was >1/3 from total distance hilum-costal pleura.

**Figure S2** Shapes (round/oval, irregular). (A) Round/Oval; (B) irregular.

**Figure S3** Margins (smooth, lobulated, spiculated). (A) Smooth; (B) lobulated; (C) spiculated.

**Figure S4** Pleural indentation. (A) There is no pleural indentation; (B) nodules adhering to pleura or pleural indentation with >1 stripe (blue arrows).
Figure S5 Vascular invasion. (A) There is no vascular invasion; (B) coexistence of irregular vascular dilation or vascular convergence from multiple supplying vessels (blue arrow).

Figure S6 Necrosis. Non-enhanced liquid area after enhancement (blue area).

Figure S7 Satellite nodules. Satellite nodules appear around the tumor (blue arrow).

Figure S8 Postobstructive pneumonia. Ground glass infiltration and atelectasis around tumor.
Figure S9 Subjective enhancement (uniform/heterogeneous/no). (A) The tumor enhanced difference is large than 15 HU with uniform enhancement; (B) the tumor enhanced difference is large than 15 HU with heterogeneous enhancement; (C) the tumor enhanced difference is less than 15 HU.
Appendix 2 Case examples

**Figure S10** A 42 years old male patient with a solid oval, slightly lobulated tumor (15×14 mm$^2$) located in the left upper lobe. The mean density of the nodule was 38.8 Hounsfield Units on CT without iodine contrast, and 39.1 Hounsfield Units after contrast (no enhancement). Radiologist's diagnosis: Benign; CART model classification: ST1; Histology: hamartoma.

**Figure S11** A 53 years old female patient with a solid round, smooth tumor (22×21 mm$^2$) located in the left lower lobe. The mean density of the nodule was 33.9 Hounsfield Units on CT without iodine contrast, and 94.1 Hounsfield Units after contrast (uniform-enhancement). Radiologist's diagnosis: Benign; CART model classification: ST1; Histology: sclerosing pneumocytoma.

**Figure S12** A 60 years old male patient with a solid irregular, lobulated tumor (23×19 mm$^2$) located in the right lower lobe. The mean density of the nodule 12 was 18.6 Hounsfield Units on CT without iodine contrast, and a density of 58.3 Hounsfield Units after contrast (uneven-enhancement). Radiologist's diagnosis: malignant; CART model classification: ST3; Histology: squamous cell carcinoma.
Figure S13 A 78 years old female patient with a solid round, smooth tumor (60×51 mm$^2$) located in the left lower lobe. The mean density of the nodule was 52.1 Hounsfield Units on CT without iodine contrast, with uneven-enhancement 68.5 Hounsfield Units after contrast. Radiologist’s diagnosis: probably benign; CART model classification: ST2; Histology: sclerosing.

Figure S14 A 56 years old female patient with a solid round, smooth tumor (18×16 mm$^2$) located in the right lower lobe. The mean density of the nodule was 15.1 Hounsfield Units on CT without iodine contrast, and uneven-enhancement 61.7 Hounsfield Units after contrast. Radiologist’s diagnosis: probably malignancy; CART model classification: ST2; Histology: adenocarcinoma.