IN110-ED-X

Can AI Generate High-Resolution Images While Reducing Radiation Exposure Dose in Chest CT?: Application of Deep-Learning Super-Resolution Imaging in Chest CT

All Day Room: NA Digital Education Exhibit

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TEACHING POINTS

In recent years, high-resolution CT is a useful tool for diagnosis of some lung diseases. However, the acquisition of high-resolution CT images takes a high radiation exposure dose. Super-resolution (SR) has attracted much attention for obtaining high-resolution images by post-processing while reducing a radiation exposure dose. The teaching points of this exhibit are to (1) review how important the high-resolution CT images for diagnosis of lung diseases, (2) understand the pitfalls of the high-resolution CT, (3) learn about the emerging SR methods, and (4) demonstrate how SR improves image quality for diagnosis of lung diseases in chest CT.

TABLE OF CONTENTS/OUTLINE

1. Introduction: Review the role of high-resolution CT for chest diseases. 2. Pitfalls: Review the pitfalls due to the acquisition of high-resolution CT images including post-processing approach. 3. Super-resolution (SR) scheme: Present the principles of the emerging state-of-the-art learning-based SR schemes including deep-learning-based SR methods. 4. Image quality improvement by SR: Describe the effect of SR in identifying chest diseases, in comparison with existing interpolation methods. 5. SR in action: Showcase examples of SR results in chest CT cases.