

Deep CT

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40 min incl. discussion

The applications of machine learning to the field of CT image formation, which describes the process of data acquisition, preprocessing, image reconstruction, artifact reduction and post processing, are manifold and, potentially, of high impact in the near future. Methods to replace missing data, to replace time-consuming computations and methods to incorporation of a priori knowledge are being reviewed and critically discussed. Moreover the possibility to use deep learning to predict CT dose distributions in real-time is being highlighted and discussed, as it may be of importance for novel image-quality and dose-optimized CT scan protocols.

This lecture will

- provide information on scatter correction with deep learning models
- critically discuss noise reduction techniques available for CT
- cover image restoration and image reconstruction techniques
- show how dose distributions can be computed with high accuracy in real-time