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On the Clinical Value of CNN-processed Ultra-low-dose Amyloid PET Reconstructions

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In this study, we aimed to generate diagnostic-quality amyloid positron emission tomography (PET) images from "low-dose"PET images, reconstructed from massively undersampled raw data, as well as simultaneously-acquired multimodal magnetic resonance imaging (MRI) contrasts used as inputs in a convolutional neural network (CNN) framework. We have shown that the synthesized images generated from a model incorporating both PET and MR inputs yield images with superior image quality and diagnostic value compared to the low-dose image as well as images synthesized from a model with PET-only inputs.

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