Probabilistic Decomposition of X-ray Image Sequence to Extract Obscure Target Objects for Monitoring Intrafractional Organ Motion

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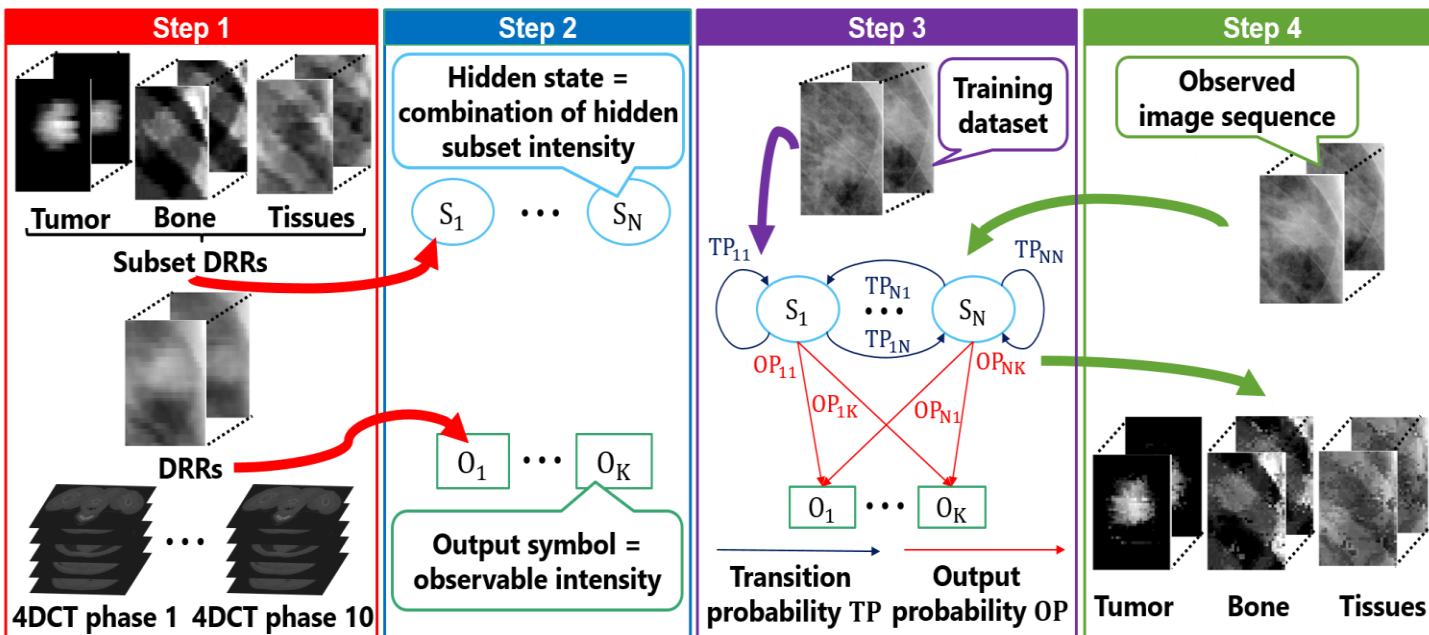
Tuesday, July 31, 2018 at 7:50 AM,   X-Ray Based Imaging for Therapy Guidance

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METHOD

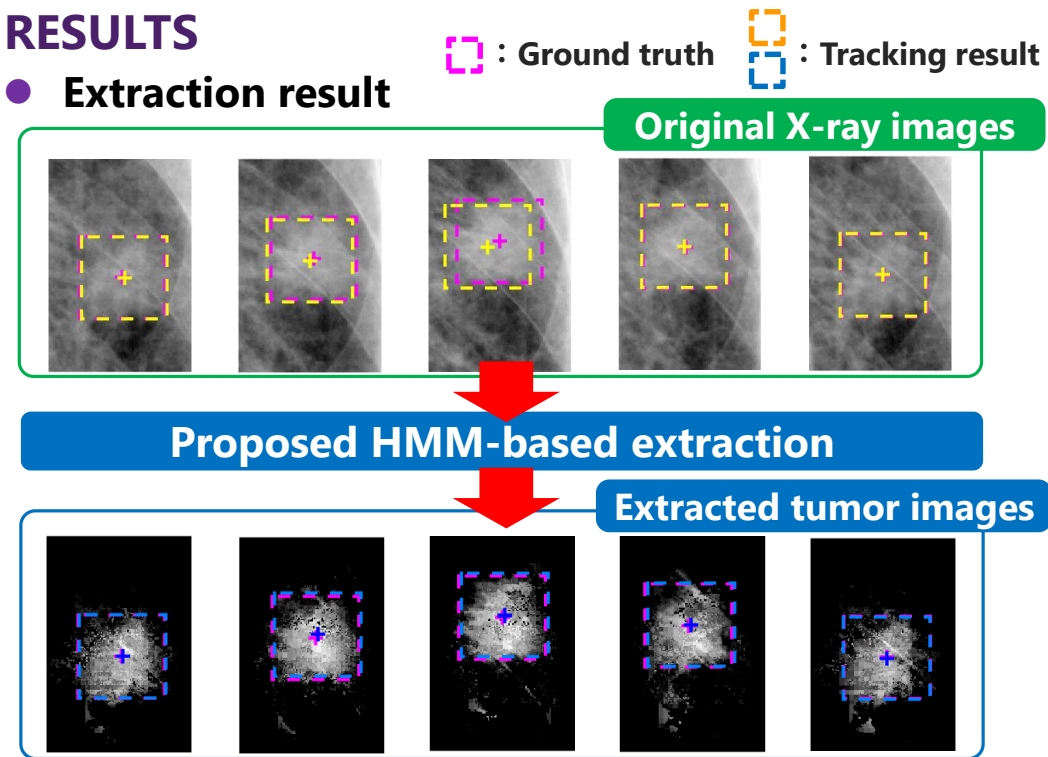**Step 1** | Generate a set of DRRs of objects of interest subtracted from 4DCT

Step 2 | Estimate possible combinations of the objects' and observable image intensities

Step 3 | Model the transition dynamics of the objects' and observable image intensities

Step 4 | Extract the objects from observed image sequence by using the dynamics

RESULTS

The average tracking error

Original sequence	1.45 ± 0.72 mm
Extracted sequence	1.26 ± 0.45 mm

HMM-based extraction can improve the tracking accuracy