

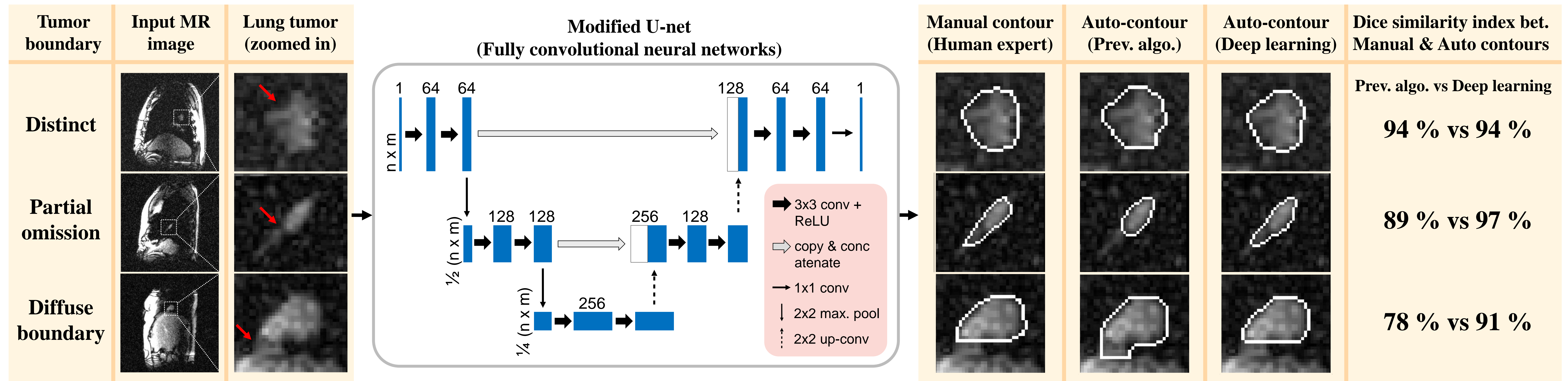
# Title: A deep learning-based tumor auto-contouring algorithm for real-time tumor tracking using linac-MR

Session: Point/Counterpoint Live Debate: Artificial Intelligence Will Soon Change the Landscape of Medical Physics Research and Practice

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Date & Time: August 02, 2018 – 9:00 am

- Why real-time tumor tracking? **Significant geometric margin reduction around tumor expected → Ultimate goal of radiotherapy**
- Why linac-MR? **Only modality providing real-time MR images of tumor while beam-on**
- What's the most important step? **Fast, reliable tumor auto-contouring from each MR image**
- Why deep learning? **Best way to mimic human experts' thought process in tumor contouring**



★★★ Deep learning based algorithm takes both  
 (1) abstract, knowledge-based tumor shape, and  
 (2) pixel-by-pixel details at tumor/healthy tissue boundaries  
 into account simultaneously for tumor segmentation.

**Exactly what human experts do!**