ML002-EC-X

Ensemble Deep Learning of Computer-aided Detection for Colon Cancer Screening in CT Colonography

All Day Room: NA Custom Application Computer Demonstration

Awards
Certificate of Merit

Participants
Kensuke Umehara, MS, Suita, Japan (*Presenter*) Nothing to Disclose
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TEACHING POINTS

The teaching points of this exhibit are to (1) review conventional computer-aided detection systems in CT colonography, (2) learn about the emerging ensemble deep-learning method, and (3) demonstrate the benefit of an ensemble deep-learning system for colon cancer screening in CT colonography.

TABLE OF CONTENTS/OUTLINE

1. Introduction: Describe the role of CT colonography (CTC) in colon cancer screening and the benefits of computer-aided detection (CADe) in CTC screening. 2. Conventional CADe: Review the design principles of a conventional CADe system. 3. Deep learning with super-learning: Provide a technical overview of the super learning of an ensemble deep-learning (ENDEL) system. 4. ENDEL-CADe: Present the effect of ENDEL-CADe in improving polyp detection performance in comparison with a conventional CADe scheme and a standalone deep convolutional neural network. 5. ENDEL-CADe in action: Showcase examples of ENDEL-CADe results using multi-center clinical trial CTC cases with biopsy-confirmed polyps.