

AbstractID: 9850 Title: Models in Medicine IV. ROC Analysis: Methodology and Practical Applications

Receiver operating characteristic (ROC) analysis is now widely accepted as the best way of assessing image quality in terms of the accuracy with which human observers can perform image-based classification tasks. After a look backward, this talk will address the questions of "Where are we?" and "Where are we going?" in the development and use of ROC methodology. Issues that must be considered in designing an observer study, in fitting ROC curves, and in testing the statistical significance of differences between ROC estimates will be described. Particular emphasis will be placed upon identifying the still-evolving conceptual threads of ROC analysis, clarifying current methodological limitations and controversies, and highlighting areas in which future effort might fruitfully be focused.

Educational Objectives:

1. To become acquainted with the fundamental concepts and history of ROC analysis, with emphasis on applications in diagnostic medical imaging.
2. To understand the basic issues that must be considered in designing observer studies, in fitting ROC curves to data, and in testing the statistical significance of differences between ROC estimates.
3. To become aware of several software packages for analysis of ROC data that are available without cost.