

ABSTRACT

This seminar will pick up where the "Practical Issues in Computer Aided Diagnosis (CAD) Research" symposium leaves off, by delving into unanswered questions defining the leading edge of CAD research. These philosophical or theoretical issues will be discussed and debated by an expert panel of CAD researchers from academia and industry. Some sample topics are shown below, others may be added from the moderators, panelists, or audience.

1. What are the unanswered questions in ROC methodology? What are the pros and cons of ROC versus FROC? Can FROC performance be quantified or compared statistically? How do you analyze performance where there is no gold standard? How do you interpret MRMC studies claiming clinical efficacy based on relatively few cases read by many readers? What happens when the decision task is not binary?
2. What is the future for computer-aided classification or characterization? While detection has been successfully commercialized, is it possible to make a classification system that actually changes the radiologist's clinical decision, such as to follow up vs. biopsy? Is there any value in improving a radiologist's ROC area if they don't change their decision? How much sensitivity is "good enough" to trade for improved specificity in the current medicolegal environment?
3. What other diseases remain to be addressed by CAD? What opportunities exist in terms of clinically significant problems with high potential for societal impact? What is the future role of CAD in medicine?
4. What are the roles of academia versus industry in CAD research? Do companies have an inside track when it comes to assembling large multi-disciplinary teams of researchers, conducting clinical trials, and translating research into products to improve patient care? What are the impediments to academics trying to take their ideas into the clinic?

Disclosure statement: J. Roehrig is the Chief Science Officer and M.L. Giger is a shareholder in R2 Technology, Inc.