### MEDICAL IMAGE PERCEPTION AND PSYCHOPHYSICS LABORATORY

           i.      Key to the psychophysics lab is a Series 6000SU Eye-Tracker (Applied Science Laboratories, Bedford, MA) with a magnetic head-tracking device. This system is an advanced eye-tracker that accurately and unobtrusively measures point of gaze and gaze duration information. The 6000SU is ideal for use in a clinical radiology setting because it provides for an unlimited field of view with free head and body motion. The 6000SU is capable of measuring point of gaze with a precision of less than one-half a degree and accuracy of less than one degree. The system comes with an extensive software library to collect and analyze data.

          ii.      There is also a Tobii eye-tracker available for research studies. This system has the eye-tracking tools integrated into a dedicated monitor and can be used for studies where scan patterns are of more interest than precise accuracy.

         iii.      A number of software packages are available for use in the psychophysics applications. The main statistical software that Dr. Krupinski uses for analyzing general data is StatView (SAS Institute). It is used for general descriptive statistics as well as comparative tests (ANOVA, Chi-Squared etc.). In addition Dr. Krupinski has the software to run a variety of Receiver Operating Characteristic (ROC) analyses including: CLABROC, CORROC2, INDROC, LABMRMC, LABROC1, LROC, MRMC, PLOTROC, ROCFIT, ROCKIT, RSCORE and ROCPWRPC. Dr. Krupinski maintains the website for the Medical Image Perception Society (<http://www.radiology.arizona.edu/krupinski/mips/rocprog.html>) that provides links to all of the programs from the various sites that developed them. As new programs become available they are added to the site.

         iv.      We also have customized software for image display and analysis developed by Dr. William Dallas from the University of Arizona (IMPROCRad). This software takes any type of image (e.g., DICOM, .tif, .img) and displays it on any monitor. There are various navigation functions available (e.g., next image, zoom, pan) as well as image analysis functions (e.g., image statistics such as noise calculations for a given region of interest).

          v.      A variety of high-performance medical-grade display monitors are available in the lab, including a Barco [Coronis Uniti (MDMC-12133)](https://www.barco.com/en/Products/Displays-monitors-workstations/Medical-displays/Diagnostic-displays/12MP-diagnostic-display-system-for-PACS-and-breast-imaging.aspx) 12 Megapixel.