**MP Compute Environment and Resources**: All labs in Medical Physics are connected via high-speed (GB) ethernet connections to the campus-wide computer system for Internet access including www resources, email, and library resources. Medical Physics has a network of 24 Unix/Linux compute nodes, 250 Windows, 8 MacOS, and 10 Unix/Linux desktop systems. There are also two Windows servers and two Unix/Linux servers that serve as file and back servers (each machine comes with two quad-core CPUs with 2.6GHz clock speed, 32GB of RAM and 64 Terabytes of general purpose storage space) in addition to dedicated and shared 256 TB of space for processing and storage by funded research projects. Each user gets 200-275 GB of space for home and data directories on these centralized shared resources that are accessible from compute nodes as well user desktop systems. The 16-node virtualized compute cluster with 10GB interconnectivity (each with 2.4GHz 32 cores and 128 GB of RAM) can be used either in interactive mode or HTCondor batch mode to perform distributed image reconstruction, post-processing, and analysis. In addition, 3-GPU nodes (2.3GHz 72 logical cores and 256 GB of RAM) with a total of 9 K80s are available for Deep Learning and Reconstruction purposes and can be used either in interactive mode or Slurm batch mode.  Each desktop system is equipped with an external encrypted usb disk for local backups in addition to the centralized backups. All systems have access to several black & white and color laser printers.  Raw data transfer for off-line post-processing from/to all the scanners using secure scp/sftp protocol is readily accomplished.

Software on unix systems includes all standard Unix utilities, compilers (C/C++, Fortran, Python, and Java), IDE such as Eclipse and Netbeans, analysis packages such as MATLAB, word processors such as, LibreOffice, plotting programs such as gnuplot, mathplotlib, plplot, spreadsheets, drawing packages, presentation packages, image editing tools such as Photoshop/Gimp, Pdf writer/converter, typesetting programs such as LaTeX/TeX, and image viewing and analysis programs such as ImageJ, MicroDicom in addition to editors like nedit, gedit, and emacs. Specialty modality specific software packages for image registration and fusion such as fsl, freesurfer, elastix, spm, afni, slicer, vtk/itk, and python anaconda3 for Deep Learning are also available. Software available on each desktop system includes Microsoft Office and LibreOffice (word processor, presentation package, spreadsheet, and database), Gimp, Inkscape, Adobe Acrobat Writer, EndNote, plotting package such as Origin, image analysis programs such as Matlab, Fiji/ImageJ, etc. In addition, each desktop machine includes a virtual machine with X11 server and NFS/CIFS capability to access Unix/Linux-based compute nodes and data for processing and analysis. All Unix/Linux software is accessible from all desktop systems (unless otherwise dictated by the license agreement of a particular package).