mi2b2 Home

Medical Imaging Informatics Bench to Bedside (mi2b2)

Many current and future clinical research studies rely on medical images for quantitative metrics for diagnosis, prognosis and treatment response. Images are used to quantify disease burden such as tumor volume, inflammation, hemorrhage, and infarction. Serial imaging is used to quantify the outcome of interventions, such as changes in tumor size or loss of brain tissue. Importantly, medical images are providing an ever increasing number of sensitive diagnostic approaches to disease, such as the use of susceptibility weighted and diffusion tensor MR imaging in the evaluation of brain trauma.

Here we describe a cell within the i2b2 hive that allows clinical images to be retrieved from a hospital's clinical Picture Archiving and Communication System (PACS). Obtaining images from a clinical PACS can be a complex affair. Leadership of radiology departments often are appropriately concerned that retrieval of medical images from the clinical PACS for research purposes might interfere with and hence compromise their clinical mission. Indeed, a tool that might pull tens of thousands of images from the clinical PACS could cause a serious clinical performance impediment. Therefore, a contract can be put into place with the software that guarantees only a governed number of images would be pulled at a specific rate at specific (off-peak) times. Furthermore, audit trails and security protocols were added to comply with the Health Insurance Portability and Accountability Act (HIPAA), where standard DICOM interfaces fail to offer appropriate assurances.

In addition to ensuring an appropriate interface to clinical systems, the software is designed to be usable by clinician scientists providing a streamlined workflow, clearly expressed with adequate feedback. Our software user interface (**UI**) is intuitive, guiding a user through querying for studies by multiple criteria, managing query results, requesting clinical data and monitoring retrieval status, and previewing retrieved data.

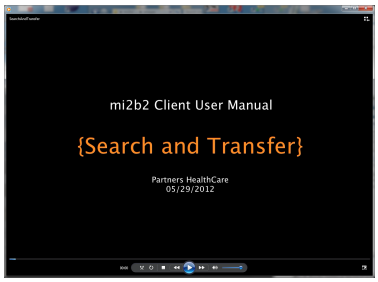
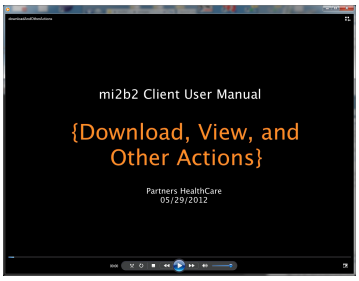
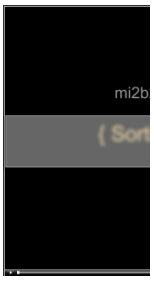
Although the software does not need the i2b2 CRC to function, the system is much more effective when patient queries utilizing the CRC can direct the download of imaging studies for specific phenotypes. By adhering to the DICOM standards for query and retrieval of images we believe our work will have broad applicability at many research hospitals.

Documentation and Demonstration

Client User Documentation

Video Demos

(requires Flash Player to watch, or download the .mp4 version below)

	Quick Start	Search for Studies	Download and View Studies	Sorting and Filt
.swf				
.mp4	**.mp4 (42.17 MB)**	**.mp4 (17.88 MB)**	**.mp4 (32.95 MB)**	unavailable
Length	5:03	2:44	2:07	1:55
Release	05/29/2012	05/29/2012	05/29/2012	08/19/2011

Please note that the videos are based on mi2b2 1.2.00. Interface differences (including tab ordering) exist in 1.3.0 and up, but should not impact the the functionality shown.

Software Download

The latest version is 1.3.0 (released on 06/10/2014). Please select the appropriate download links below for the latest version or visit the main download page for previous releases.

1. Client source code
2. Server source code
3. Mac OS X executable
4. Windows executable