

## How To Use ITK and MFC

### What Is The Purpose Of This Application ?

The object of this application is to illustrate the use of ITK with MFC. ITK is a powerful open-source software toolkit for performing medical image registration and segmentation. It's implemented in C++, using the CMake build environment to manage the compilation process. MFC (Microsoft Foundation Class) provided by Microsoft is a framework and engine for programming applications based on C++ environment. MFC can be handled in several IDE, such as Visual C++, Borland C++, C++ Builder and Symantec C++ etc. By interconnecting ITK and MFC, developers can design medical image registration and segmentation applications with friendly user interface.

### To Use This Application

It's recommended to create a binary folder to hold all the files that will be generated by CMake, rather than setting the binary folder as the same as the source codes folder. When you configure the CMake, make sure you specify the correct ITK\_DIR which contains the libraries that are built by Visual Studio. (both debug and release versions are supported).

Open the VC project/solution file with Visual Studio, you will find the intact project structure in Solution Explorer, Class View and Resource View. Build the ItkRegMFC project in either debug or release mode, ItkRegMFC.exe will be generated in the corresponding folder, then execute ItkRegMFC.exe directly from that folder. You can open/clear the fixed and moving images, zoom in/out and drag them with mouse, see the screen shots below.

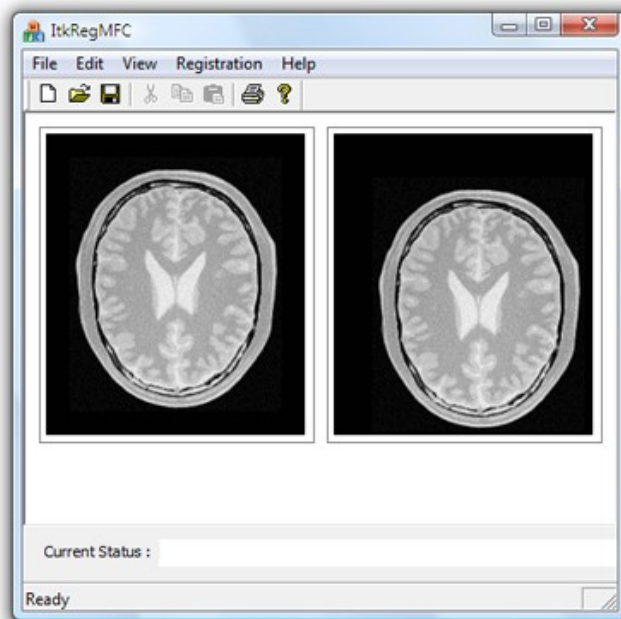


Fig. 1 Fixed image and moving image

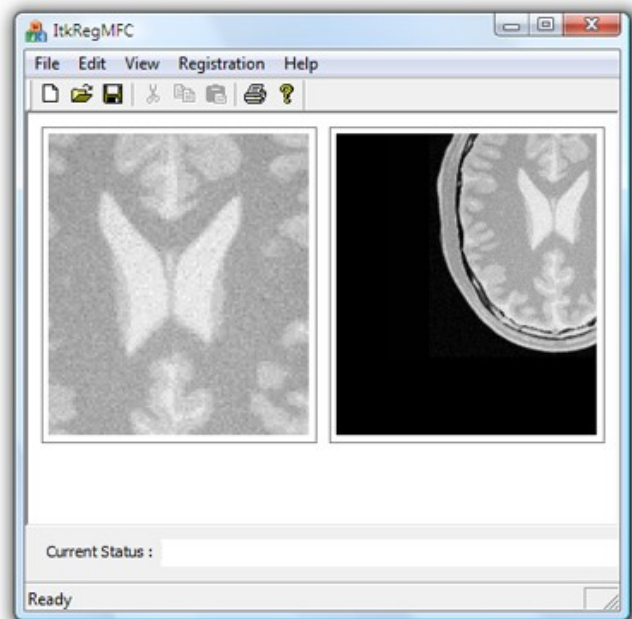


Fig. 2 Zoom in/out and drag images

To perform the registration task, just simply select Registration->Start menu and you will see the Current Status field updates each iteration information during the computation. As the multi-thread architecture is used, the huge registration work won't affect the UI, after the whole procedure, you will get the aligned image and result information, see the screen shots below.

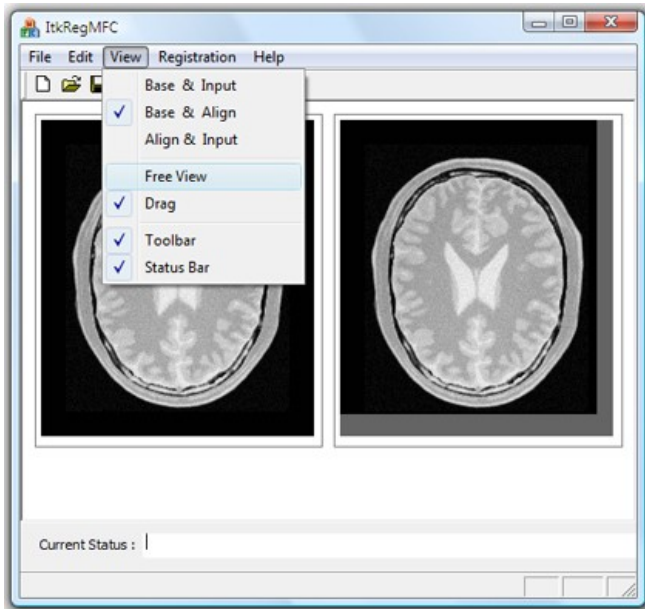


Fig. 3 View menu

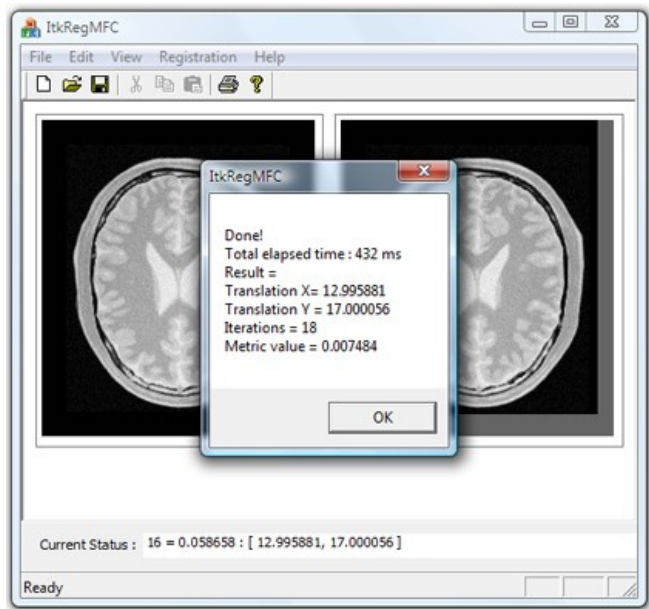


Fig. 4 Result information of registration

This application performs the same task as ImageRegistration1 (In Examples\Registration\), if you use debug mode, it takes about 2400ms to complete the whole registration work in 18 iterations, by using release mode, it only takes around 430ms which is also faster than running ImageRegistration1 from command line.

This application is done by the following tools:

InsightToolkit-3.0.0, CMake 2.4, Visual Studio 7 .NET 2003

## Acknowledgments

Thanks to Jin Jing (Medical Ultrasound Imaging, University of Rochester) for introducing and contributing ITK and CMake.

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February 03, 2007