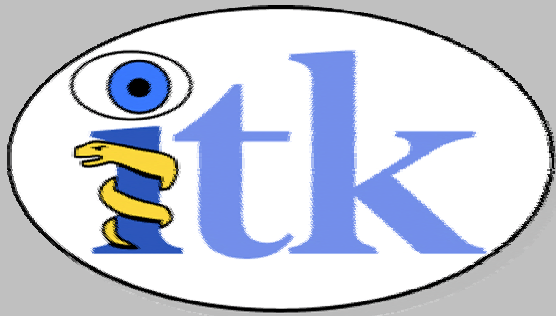


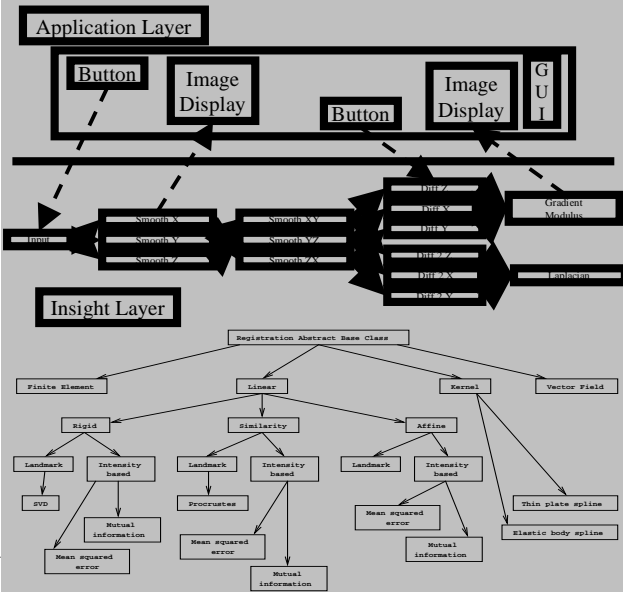


# Insight: National Library of Medicine's Software for Medical Image Analysis



Above: The logo for the Insight Toolkit (itk). It was chosen to demonstrate the integration of medicine and computer-aided analysis that drives this effort.

Below: The upper figure shows the modular design of the toolkit being exploited for the development of a multi-scale edge-enhancement system. Such a system could be used to accentuate the spiculations of a cancer and thereby aid in assessing its malignancy. The lower figure depicts a portion of the taxonomy of registration algorithms in itk. This taxonomy has been translated into an interchangeable and extensible C++ class hierarchy. Similar taxonomies have been developed and translated into itk for statistical segmentation, image I/O, finite element analysis, and numerous other areas of medical image analysis.



*“The goal of data analysis is insight, not visualization.”*

Under funding from the National Library of Medicine, UNC’s Department of Radiology is one of six groups collaborating on the development of a software library to serve as the national standard for medical image segmentation and registration. This software standard will be the foundation for the development and distribution of computer algorithms for delineating organs, diagnosing cancers, comparing images over time and across imaging modalities, modeling patient populations, and more.

This ambitious project is pushing the limits of today’s PC’s and C++ compilers. We are taking advantage of object-oriented design strategies and C++ programming constructs and styles that will ensure the portability, extensibility, and applicability of this toolkit.

The consortium members included the three commercial partners GE Corporate R&D, Kitware, Inc., and MathSoft; and the three academic partners University of North Carolina, University of Tennessee, and University of Pennsylvania.

At UNC, this project is being lead by Drs. Stephen Aylward and Luis Ibanez. Significant contributions are being made by the research assistants: Jisung Kim and Sungwook Park.

For more information, please see the CADDLab web pages at

<http://caddlab.rad.unc.edu>