Stroke is the leading cause of disability and the third leading cause of death following cardiovascular diseases and cancers. Atherosclerosis of carotid arteries is the most common cause of stroke. Accurate localization and visualization of the stenosis, as well as quantitative measurement of the plaque composition, are clinically significant in stroke management thereby reducing morbidity and mortality.

Benefits:

- Accurate localization and visualization of the arterial stenosis
- Quantitative measurement of the plaque composition
- Significant stroke management thereby minimizing morbidity and mortality

A computer based technique to assess the extent of stenosis and plaque composition using data from multiple image sets, where the image data can be displayed simultaneously, has been developed. The image sets are comprised of single-modality images or multi-modality images.

A method is also provided for correcting spatial inhomogeneities which may occur in magnetic resonance image (MRI) data. Thirdly, a method is provided to assist a user, such as a physician, in editing the computer aided, automatically processed results of the visualization. The user is able to employ a graphical user interface to introduce editing the multiple image sets.

Applications:
- Evaluating degree of carotid stenosis and plaque composition
- Correcting spatial

Patents / Publications:
- US Patent 7,356,367

R-7414

Images: Detecting the location of plaque, i.e., the stenosis by distance field from either MRI or CT scan, or from both scans

Donna Tumminello
Assistant Director
Office of Technology & Industry Relations
631-632-4632
Donna.Tumminello@stonybrook.edu