

APPLIED MATHEMATICS  
HONORS THESIS

*Image Recognition of Coronary Stents for Automatic  
Construction of Patient Specific Models*

Shannon Buckley  
Emory University

**Abstract:** Professor Veneziani and his team of graduate students have been working on the problem of modeling the effects that cardiovascular disease and the medical procedures employed to cure it have on the fluid dynamic process of the cardiovascular system. One of the newer solutions to this pressing disease is to insert a medical structure, called a stent, into the artery where a blockage is occurring. The modeling of this procedure requires the creation of a 3D model of the stent, which is then used in the algorithms. For real patients this data has previously been collected by manually recording the locations of the stent structures found in arthroscopic images of the patients arteries. To speed up this data collection process and provide more accurate data, we have created a MATLAB algorithm that uses image recognition software to automatically identify stent structures in the arthroscopic images and record their positions in the artery.

Wednesday, April 16, 2014, 1:00 pm  
Mathematics and Science Center: E408

MATHEMATICS AND COMPUTER SCIENCE  
EMORY UNIVERSITY