The Department of Computer Science and Engineering

University of Nevada, Reno

cordially invites you to a Master's colloquium

Semi-Automated Analysis Software for a Novel Biochemistry Assay

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science
with a major in Computer Science.

by

Joseph M. Vesco

Abstract:

Some of the work done in the Baker lab at the University of Nevada, Reno has been directed towards the analysis of muscle tissue in a single molecule arrangement. The process is a novel high-throughput single molecule binding assay, or SiMBA for short. This assay is performed by placing the myosin portion of the muscle tissue on a slide and looking at how the actin portion is attracted to these myosin. The conditions are varied and the response of the labeled action to these changes are observed. In order to analyze the binding times and unbound times a researcher must observe the interacts and manually collect the data. This particular method of data collection is tedious and time consuming thereby making this portion of the experiment the "rate limiting" factor for producing results in a timely manner. As this can take many hours to analyze a one minute long movie a automated or semi-automated solution would be beneficial to this assay. This thesis presents the design and implementation of a semi-automated solution for identifying and tracking a variable number of objects that exhibit a multitude of behavior, and extracting the specific behaviors of motion and stagnation as well as the duration of these behaviors.

9:30 am, Thursday, December 22, 2011

Scrugham Engineering and Mines (SEM) room 201

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