1163-68-1022   **Jessica C De Silva*** (`jdesilva1@csustan.edu`), **Darcy Brunk**, **Juan Valencia** and **Talita Perciano**. *Image Segmentation via Hypergraph-based MRF Models.* Preliminary report.

X-ray micro-tomography (μ-CT) is a non-destructive 3D imaging technique often used to image material samples. The Advanced Light Source at Berkeley National Laboratory houses a synchroton-based μ-CT instrument which produces high volumes of data at a fast rate. This has led to the need for image processing techniques capable of extracting valuable information in large complex data sets. Image segmentation is an important processing step which separates various components in an image. Graph-based segmentation algorithms have been used for many years, with current interest primarily in designing algorithms which can handle large data sets. Recent approaches using Markov Random Fields (MRFs) exploit local properties of MRFs to run computations in parallel. We have developed an image segmentation algorithm using a hypergraph-based MRF model. The algorithm is coded in C++ and preliminary results indicate that this generalized model improves the precision of the segmentation of μ-CT images. (Received September 14, 2020)