



**Department of Mathematics, Statistics and Computer Science
St. Francis Xavier University
Presents**

**Strong Image Segmentation
via Multiple Instance Learning**

**by
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Monday, February 11th @ 2:15 in Ax23A

Image segmentation plays a key role in a range of fields including computer vision, content-based image retrieval, object recognition, medical imaging, etc. However, strong segmentation, which corresponds to a partitioning of an image into regions that are semantically meaningful to people, remains a difficult and as yet unsolved problem. Most current image segmentation algorithms use low-level visual features such as color and texture descriptors to create regions that are homogeneous into one or more of those low-level visual features. However, regions that are homogeneous in low-level visual features do not necessarily (and usually do not) correspond to meaningful objects. This is mainly caused by the disconnection between low-level visual features and high-level semantics, which is known as the semantic gap. To tackle the semantic gap, various approaches have been proposed. In content-based image retrieval, the use of machine learning techniques in conjunction with relevance feedback has proven useful in the past. Relevance feedback learning attempts to reduce the semantic gap by gathering semantic information from the user.

This proposal, enlightened by the power of relevance feedback learning in bridging the semantic gap, aims at setting up a relevance-feedback-based paradigm for semantic image segmentation. The proposed method differs from other existing approaches in that it does not make any special assumption about the particular type of objects that are to be segmented. Instead, it utilizes the semantic cues conveyed in the user's relevance feedback in conjunction with Multiple Instance Learning to achieve an implicit (and automatic) strong segmentation.

Refreshments will be served before the talk in AX24A