# Local Image Descriptors: Techniques and Applications

Matthew Brown

University of British Columbia, Canada

## Abstract

This talk will discuss methods and applications for local feature matching in images. We'll begin by reviewing widely used techniques for interest point detectors and descriptors, such as Harris and SIFT. We'll then discuss methods to learn local image descriptors using calibrated imagery as training data. This will make use of supervised learning algorithms including LDA, Powell Minimisation and AdaBoost. We'll show how discriminative learning techniques can find optimal descriptors with fewer dimensions and less parameter tuning than traditional approaches. These descriptors will be useful for image matching and object recognition, and the tutorial will be illustrated with applications to panoramic stitching, 3D reconstruction and image search.

*Syllabus: local features, SIFT, discriminative learning, image stitching, 3D modelling, photosynth*