



Seminar



Shape-based Image Retrieval

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Monday, January 25th, 2010

10:00AM – 11:00AM

SITE 5084

Abstract:

Recent years have seen an enormous increase in the number of images captured by digital cameras. The ease and convenience of capturing digital images and transmitting them between digital cameras and image databases is a contributing factor to the immense growth of image databases. These databases cover a wide range of applications, including military, environmental, astronomy, transportation, medical and multimedia. The storage format of the image data is relatively standardized; however, the effective retrieval of images from such databases remains a significant challenge.

Early retrieval techniques relied on the textual annotation of the images: images were first annotated with text, then searched for based on their textual tags. However, text-based techniques have many limitations due to their reliance on manual annotation – a tedious and error-prone process, especially for large data sets. Furthermore, the rich content typically found in images and the subjectivity of human perception make using words to describe images a difficult, if not impossible, task. To overcome these difficulties, Content-Based Image Retrieval (CBIR) was proposed. CBIR techniques use such visual contents as color, texture, and shape to represent and index images. Of these, shapes contain richer information than color or texture. However, retrieval based on shape contents remains more difficult than that based on color or texture due to the diversity of shapes and the natural occurrence of shape transformations such as deformation, scaling and orientation. Shape-based image retrieval is still in its early stages, although several attempts have been made to solve or minimize challenges associated with it.

In this talk, I will:

- Give an overview of content-based image retrieval with focus on shape-based image retrieval.
- Present the most commonly techniques used for shape-based image retrieval.
- Explain new shape-based image retrieval techniques that I have recently published.
- Compare the performance of the new techniques against the most notable shape-retrieval techniques.

Biography:

Akrem El-ghazal received his B.Sc. degree (honors) in Electrical and Electronic Engineering from the Faculty of Engineering, Garyounis University, Benghazi in 1994. He received his M.Sc. degree (honors, AGPA 3.89/4) from the Department of Electrical and Electronic Engineering, Faculty of Engineering, Garyounis University, Benghazi, in 1998. From 1998 to 2003 he has been with the Department of Electrical and Electronic Engineering, Faculty of Engineering, Garyounis University, as a full-time faculty member. In Spring-2009, he completed his PhD degree from University of Waterloo, Department of Electrical and Computer Engineering. He is currently a lecturer at the Department of Electrical and Computer Engineering, University of Waterloo. Akrem received the University of Waterloo Graduate Scholarship award in spring 2006. He also received the Faculty of Engineering Graduate Scholarship award in winter 2006.