An introduction to content-based image retrieval

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With the exponential growth of available digital imagery, effective and efficient techniques to manage these data are highly sought after. Clearly, image collections are only of use if they can be queried, yet manual annotation to enable such search is expensive, time consuming and error-prone. Luckily a lot of research in the last two decades has focussed on techniques to extract useful data directly from images to facilitate searching large image repositories. In this tutorial we will explain the underlying techniques, highlight some of the challenges to be overcome, and introduce some recent approaches that provide interesting and useful methods of working with image datasets.

Tutorial contents:
• Image databases and problems of manual annotation
• Content-based image retrieval by colour, texture, and shape
• Challenges: compression and colour variations
• Image classification
• Image annotation
• Image database visualisation and browsing

Tutorial length: 3-4 hours

Pre-requisites: none

Speaker biography:

Gerald Schaefer gained his BSc. in Computing from the University of Derby and his PhD in Computer Vision from the University of East Anglia. He worked at the Colour & Imaging Institute, University of Derby (1997-1999), in the School of Information Systems, University of East Anglia (2000-2001), in the School of Computing and Informatics at Nottingham Trent University (2001-2006), and in the School of Engineering and Applied Science at Aston University (2006-2009) before joining the Department of Computer Science at Loughborough University. His research interests are mainly in the areas of colour image analysis, image retrieval, physics-based vision, medical imaging, and computational intelligence. He has published extensively in these areas with a total publication count exceeding 200. He is a member of the editorial board of several international journals, reviews for over 50 journals and served on the programme committee of about 150 conferences. He has been invited as plenary speaker to several conferences, is the organiser of some international workshops and special sessions at conferences, and the editor of several books and special journal issues.