



THE UNIVERSITY OF AUCKLAND  
NEW ZEALAND

COMPSCI 708 - Hypermedia and Multimedia Systems  
Assignment 5 - BUILD A SIMPLE CONTENT BASED IMAGE  
RETRIEVAL SYSTEM AND PREPARE A SEMINAR PRESENTATION ON  
STATE-OF-ART CBIR CAPABILITIES AND APPLICATIONS  
Out: Wednesday 12<sup>th</sup> April, 2006  
Due: Wednesday 24<sup>th</sup> May, 2006

**Worth:** 25% of final course grade

**Due:** Wednesday 24<sup>th</sup> May, 2006; group presentations: from 25<sup>th</sup> May, 2006 to 1<sup>st</sup> June, 2006

**Aims:**

- Learn capabilities of current CBIR techniques in solving application problems
- Use programming skills to implement and evaluate a simple CBIR system
- Learn how to effectively use multimedia tools for presenting results of your work

**Preparation** (group and individual work):

- **Each group** creates a simple CBIR system being able to (i) match a query image to a small MIT Vistex  $128 \times 128$  database of colour images indexed with one or more MPEG-7 descriptors chosen by the group and (ii) show eight top matches for each query (to simplify the task, your database and query images may be in the same graphics file format and the descriptor values for the database images are pre-computed).
- **Each group** demonstrates how the system works with an arbitrary query image being present or absent in the database and produces a multimedia presentation that combines and delivers most efficiently all findings of the group members to the seminar audience (the total demonstration / presentation / discussion time is up to 20 min).
- **Each group** may delegate the demonstration and presentation to one or more group members but all the group members should be ready to answer questions on their work and actively participate with questions to other presenters regarding the topics at hand.
- **Each group member** should find, by surfing the Web and looking through available library resources, multiple examples of important application problems being solved or attempted to be solved using automated image content description and retrieval (an example to start with: *Image Intelligence*<sup>TM</sup> engine for identification and removal of offensive images sent by email: see [http://www.itchannel.net/info/image\\_intelligence.phtml](http://www.itchannel.net/info/image_intelligence.phtml)).
- **Each group member** should write an individual report (up to four A4 pages; pdf or doc file) which overviews selected application problems, outlines basic ideas of their solutions found (including image features and CBIR techniques used for solving each problem), and describes own part of the work on creating the CBIR system.

**Assessment criteria:**

- The workable CBIR system accepting a query image given by instructors.
- Clear and understandable reports.
- Professional use of multimedia tools in your presentation, i.e. how well your presentation matches the seminar audience (your class and instructors).
- X-FACTOR: How much Chris, Emilia, and Georgy like your CBIR system, your presentation, and your seminar questions / answers.

**A broad guide to the marking** (report: 50%; presentation: 50%) is as follows:

- 30% aesthetics (presentation / report layouts, use of figures / images / video / etc.)
- 35% contents (workability of the created software, understanding of the problems and ways to their solution, clarity, the numbers of problems and solutions found, completeness of the references to publications and on-line sources, etc.)
- 15% technical (understanding of image descriptors and CBIR techniques involved)
- 20% X-FACTOR (creativity, seminar activity, mode of presentation, etc.)