Multi-User, Multi-Site Experiments: K-Space @ TRECVID 2008

Pete Wilkins, ... and many others
Overview

- K-Space: Who we are (1)
- Experiment Overview (3)
- System/Interfaces Overview (4)
- Experimental Analysis (7)
- Conclusion (1)
K-Space: Who we are [1/1]

- European Network of Excellence (NoE), ending 2008, specializing in Content Analysis, Knowledge Extraction, Semantic Inference

- Comprised of 14 European Academic and Research groups

- TRECVID 2008 involved 11 partner institutes contributing towards search engine and/or search experiment

- Groups involved include:
  - DCU, CWI, Eurecom, ITI, JRS, QMUL, TUB, UEP, UG

- Developed resources available to community:

  http://kspace.cdvp.dcu.ie/
Experiment Overview [1/3]

- Multi-Site, Multi-System User experiment

- Key components:
  - 3 User Interfaces developed
  - 1 Common search engine
  - 3 Geographically disparate sites (Amsterdam, Dublin, Glasgow)
  - 12 Users per site, 36 total

- Objective: To isolate as many variables as possible that may affect Interactive Video IR performance, notably:
  - User Interface impact
  - User effect
  - Site effect
Experiment Overview [2/3]

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- Each user completed 12 topics, 4 topics on each system
- Topic assignment from Latin Squares experiment design
- Order of systems was randomized
- Order of topic progression for a system was not randomized
- Prior to each system, user was shown demonstration video and had 1 training topic of 5 minutes duration to learn the system.
Experiment Overview [3/3]

- Quantitative and qualitative data captured

- Qualitative data in form of survey questions at:
  - Pre-experiment
  - Post-topic
  - Post-system

- Extensive time-stamped logging, events including:
  - Searches made, type & terms used
  - Shot saved
  - Shot played
  - Shot removed
System/Interfaces Overview [1/4]

- Common Search Engine allows for:
  - Text only search
  - Multiple Query by Example
  - Multimodal Search

- Text Search:
  - ASR Indexed
  - CU-VIREO 374 (Thanks to Columbia and CUHK) and additional semantic feature terms expanded through WordNet and indexed with shot

- Visual Search:
  - Low-level MPEG-7 visual features for visual similarity

- Set of audio and visual ‘filters’ available
System/Interfaces Overview [2/4]

DCU-1
System/Interfaces Overview [3/4]

DCU-2
System/Interfaces Overview [4/4]
Analysis [1/7]

- Analysis presented here is preliminary

- Very large amount of experimental data, allowing multiple research questions to be examined

- Data to be made available

- Following analysis from viewpoint that if user saved shot it was considered relevant to that user
User & NIST Relevance Agreement

- **CWI**
- **DCU**
- **GU**

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The chart compares the percentages of agreement between User and NIST for different systems (DCU-1, DCU-2, GU) using three different categories: CWI, DCU, and GU.
Conclusion

- Large laboratory Video IR experiment, 36 users, 3 sites, 3 interfaces
- Produced a *very* large amount of experimental data
- Multiple ways of analysing data, this is just starter
- Objective to clean and release data to wider community