The MUSCLE / ImageCLEF Image Retrieval Evaluation Campaigns

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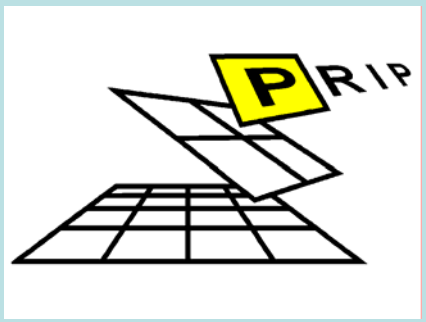

Contents

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  - ImageCLEF 2006
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Coin Images Seibersdorf (CIS Benchmark)

- Collected as a result of the currency change to the Euro.
- There are two CIS-Benchmark collections available:
  1. **CIS-Light** Benchmark (2 GByte) containing
     109 coin types defined by 389 coin classes/subclasses,
     1100 test coins (2200 images) with ground truth.
  2. **CIS-Full** Benchmark (14 GByte) containing
     693 coin types defined by 2270 coin classes/subclasses,
     30.000 test coins (60.000 images) with ground truth.

CIS-Benchmark: Training data example, ‘100 Ptas’

0406-01F0

0406-02F0

0406-02F1

0406-03F0

0406-05F0

Front side:

0406-06F0

0406-07F0

0406-08F0

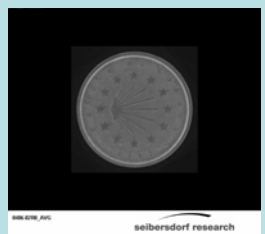
0406-09F0

Reverse side:

0406-01R0

0406-01R1

0406-01R2



0406-02R0

CIS 2006 Competition

- Coin recognition competition
- Authors are invited to send
  1. their solutions (programs) which will be evaluated on a set of new data (10000 coins not contained in CIS-Light or CIS-Full), **Deadline 3.07.2006**
  2. a paper describing their solution to be presented at the MUSCLE CIS workshop in September 2006
- Competition results will be presented at the workshop.
- Use the CIS-Full dataset for training.
- **The best solution will win a prize sponsored by MUSCLE (€1500).**
- See http://muscle.prip.tuwien.ac.at/coin_description.php

CIS Workshop

- Held as a workshop of the DAGM conference in Berlin (http://dagm06.hhi.de/).
- Conference from 12th to 14th of September.
- CIS Workshop on 11th of September.

CIS-Benchmark Schedule

- Registration of participation 30 May 2006
- Program deadline 3 July 2006
- Paper submission deadline 31 July 2006
- Notification of acceptance 28 August 2006
- Workshop 11 September 2006

- Organisers:

Michael Nölle

Michael Rubik

Allan Hanbury

ImageCLEF 2006

- Photographic retrieval task (ImageCLEF Photo)
- Medical image retrieval task
- Automatic annotation for medical images
- Automatic annotation for general photographs (pilot task)
- Part of the CLEF evaluation campaign: http://www.clef-campaign.org

Organised jointly with the DELOS NoE

ImageCLEF Organisers

Photographic Retrieval

Medical image retrieval

Automatic annotation for medical images

Automatic annotation for general photographs

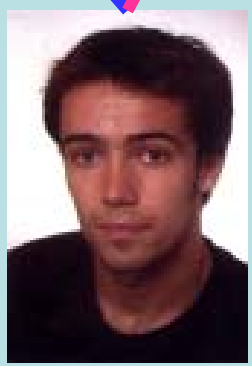
Paul Clough (coordinator)

Henning Müller (coordinator)

William Hersh

Michael Grubinger

Thomas Lehmann



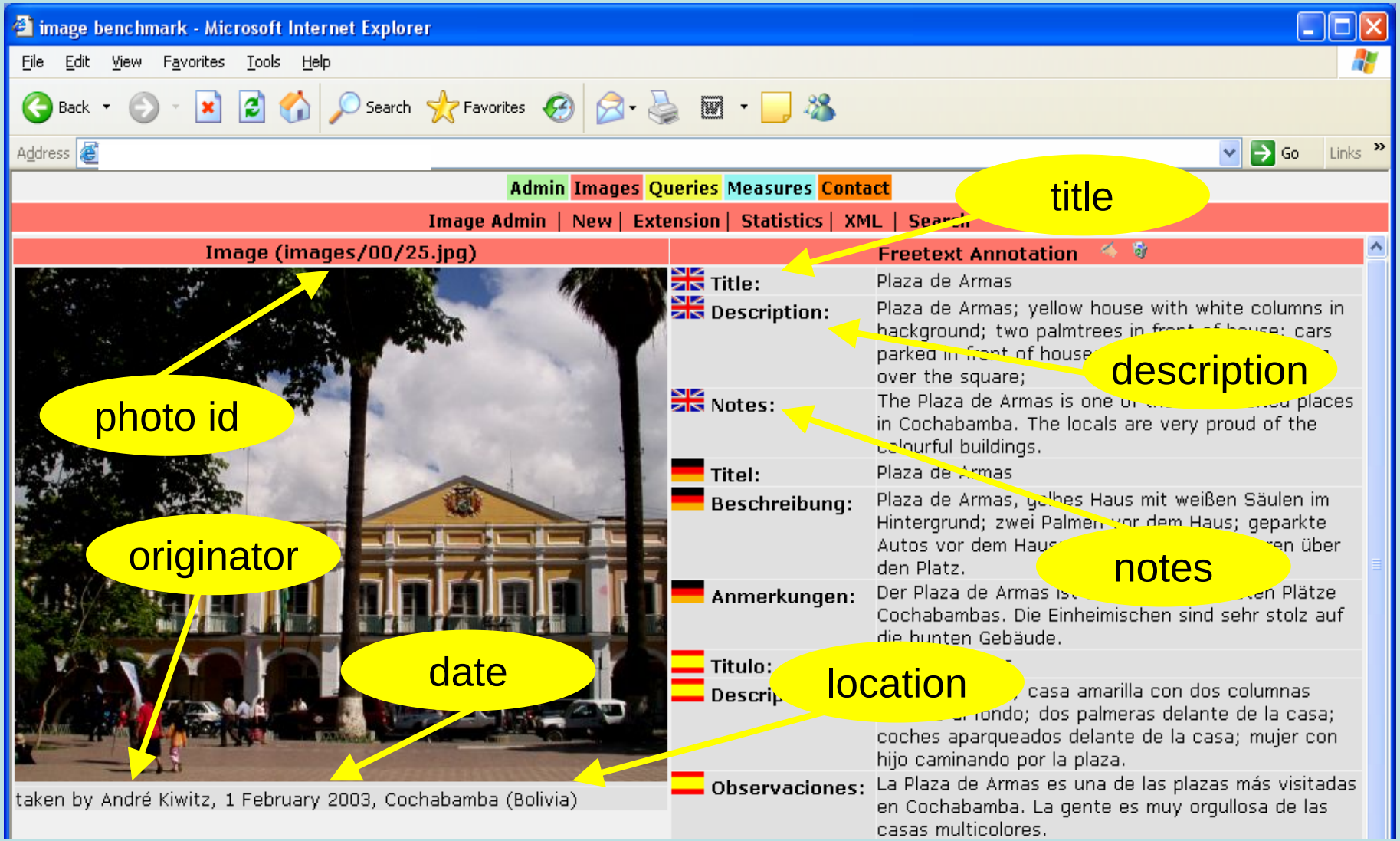
Thomas Deselaers

Allan Hanbury

Photographic retrieval task

- Dataset of 20000 images (IAPR-TC12 dataset)
- Each image has
  - Title
  - Description
  - Notes
- In
  - English
  - German

Photo captions



- Queries:
  - 25 text queries in a variety of languages
  - 25 visual queries
- Example visual query:
  - Which famous landmark is this?
- Answer:
  - “La Mitad del Mundo”
    Quito, Ecuador

- It won’t be necessary to provide a textual answer. We will also evaluate how many of the returned images contain the landmark.

- Example text query:
  - Find photos of the Iguazo Falls
- Results:

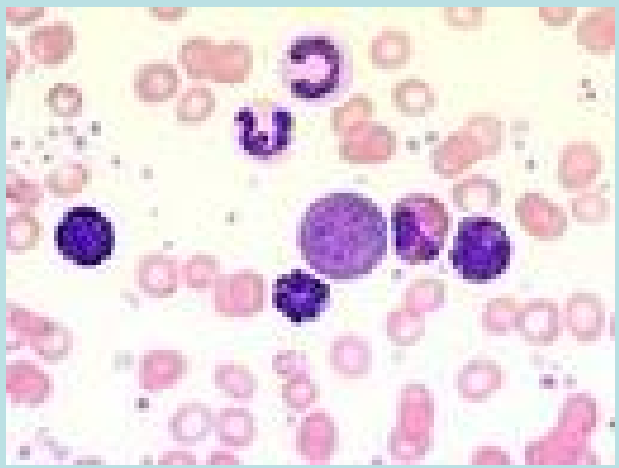
- Query which could benefit from both text and visual retrieval:
  - Find images with white, snowy mountains in the background.
- Results:

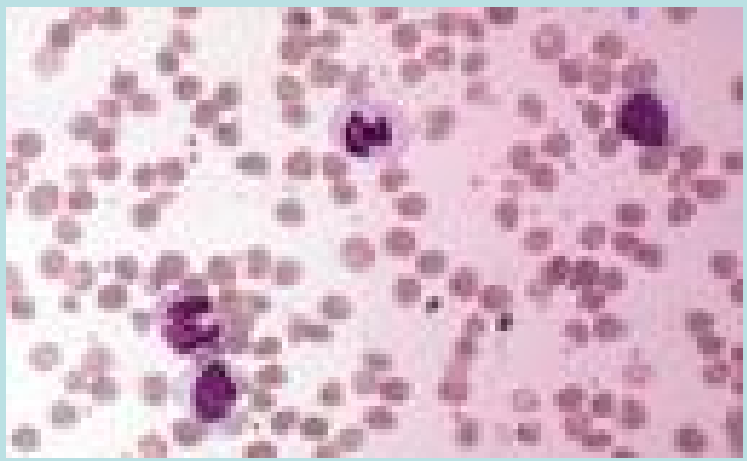
Ad-hoc medical retrieval task

- 50,000 medical images
  - 4 sub-collections with heterogeneous annotation
  - Radiographs, photographs, Powerpoint slides and illustrations
  - Mixed languages for annotations (French, German and English)
- Search topics based on 4 axes
  - Modality (e.g. x-ray, CT, MRI)
  - Anatomic region shown in image (e.g. head, arm)
  - Pathology (disease) shown in image
  - Abnormal visual observation (e.g. enlarged heart)
- Topics consist of annotation in 3 languages and 1-3 query images

Example

- Show me microscopic pathologies of cases with chronic myelogenous leukemia.
- Zeige mir mikroskopische Pathologiebilder von chronischer Leukämie.
- Montre-moi des images de la leucémie chronique myélogène.

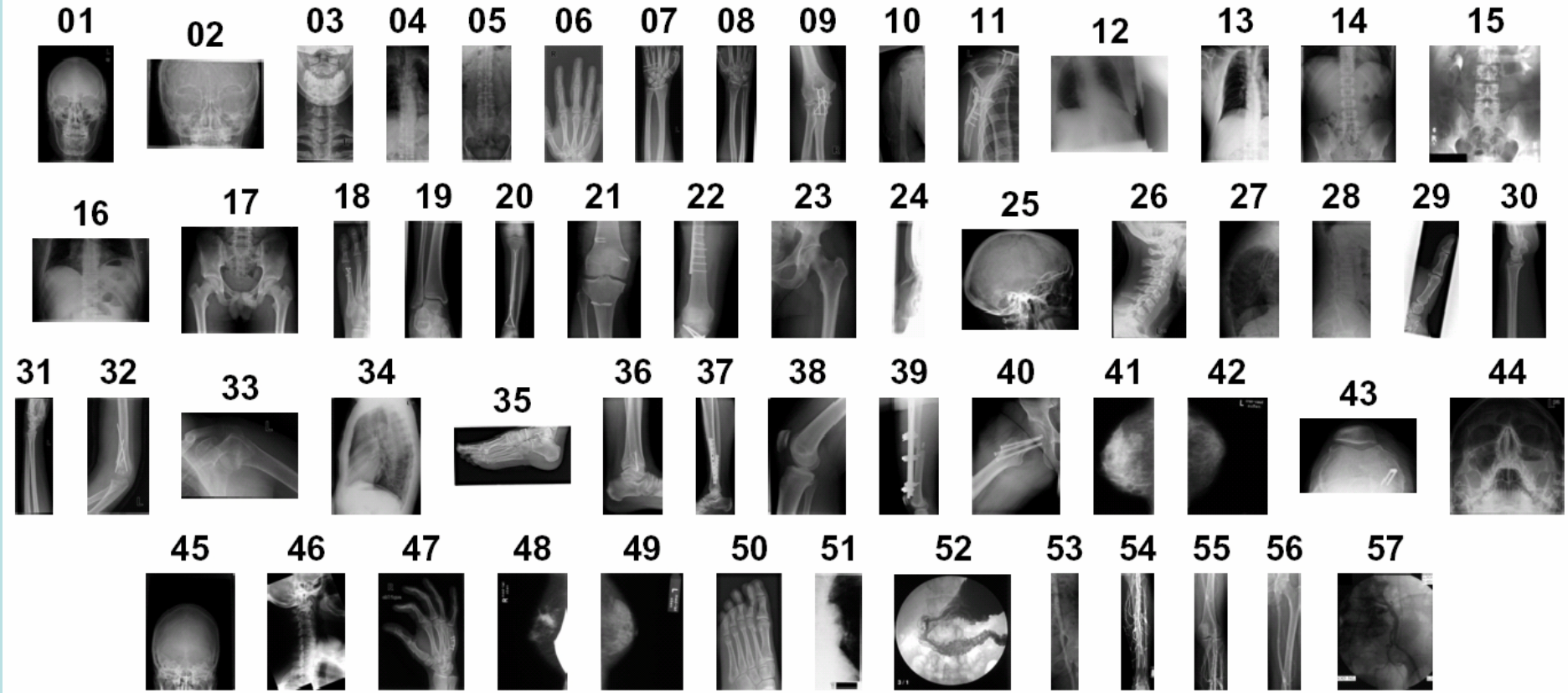




Medical image annotation task

- Initiated in 2005 with
  - 9,000 training images
  - 1,000 test images
  - 57 classes
  - data provided by IRMA project (http://irma-project.org)
- best submissions had error rates below 15%
- Participation:
  - In total 41 submitted runs by 12 groups (26 registered)

Example images



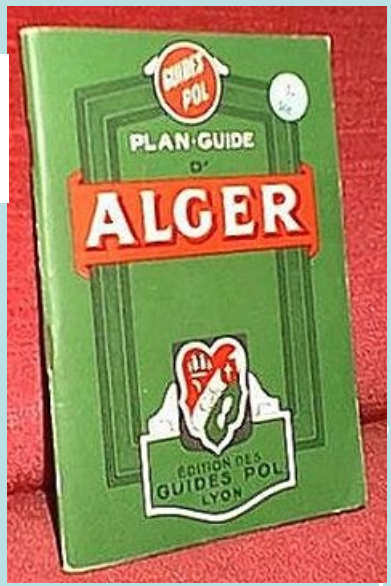
Sixth Framework Programme
Information Society Technologies

Automatic annotation 2006

- 10,000 training images (already available)
- 118 classes
- 1,000 test images (to be released soon)
- task: classify the test images as accurately as possible
- definition of classes is based on a complex code:
  - Example: 1121-127-720-500
    - radiography, plain, analog, overview
    - coronal, AP, supine
    - abdomen, middle
    - uropoetic system

Object recognition task

- 20 objects to recognise
  - ashtrays, backpacks, balls, banknotes, benches, books, bottles, cans, calculators, chairs, clocks, computer equipment, cups and mugs, hifi equipment, eating utensils, plates, mobile phones, sofas, tables, wallets.
  - From the LTUtech object dataset.
- ~300 training images per object, in fact 13698 training images.



- 1000 images in which the objects must be recognised (images with more clutter).
- Only one type of object per image.

ImageCLEF Schedule

• Registration opens	15 January 2006
• Data release	from February 2006
• Topics release	soon
• Submission of runs deadline	depending on the task
• Release of results	from 15 July 2006
• Workshop papers deadline	15 August 2006
• Workshop, Alicante, Spain	20-22 September 2006

Second MUSCLE / ImageCLEF Workshop on Image and Video Retrieval Evaluation

- 19th of September 2006 in Alicante, Spain
- Invited Speakers to be announced
- Main discussion topics
  - performance evaluation and measures
  - realistic tasks and user models
  - datasets and copyright issues
  - (efficient) creation of ground truth
- See http://muscle.prip.tuwien.ac.at/ws_overview_2006.php

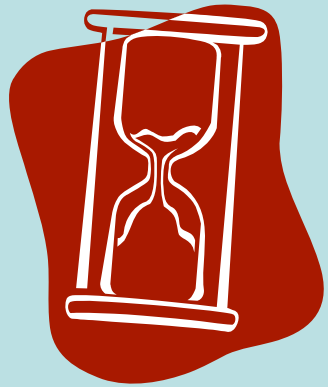
ImagEVAL

- Evaluation campaign organised by the CEA-LIST, France and partly sponsored by MUSCLE.
- See http://www.imageval.org/
- Organisers: Pierre-Alain Moellic, Jacques Klossa, Pierre Michea

IMAGEVAL (2)

- Five tasks are being carried out:
  - Recognition of transformed images (rotation, translation, scaling, etc.)
  - Search for photographs illustrating a text using text and image analysis.
  - Detection of text areas in an image.
  - Object detection.
  - Automatic image classification (night/day, indoor/outdoor, city/nature, etc.)

IMAGEVAL timeline



- July 2005: Sending of the learning databases to the participants.
- September 2005: Test runs
- January 2006: Participants send in results of test runs for analysis
- March 2006: Communication of the test run results to participants (not published)
- April 2006: Sending of official databases
- August 2006: Participants send in results of official runs for analysis.
- October 2006: Communication of official results (publications)
- December 2006: Workshop

MUSCLE benchmarking archive

- http://muscle.prip.tuwien.ac.at
- Data and software available for download
- Most is available simply by registering
- Some examples of available data:

CEA-CLIC: 15200 images in 16 categories

Food

Objects

Symbols

Arts

Texture

Music

Technology

Landscapes

Linguistic

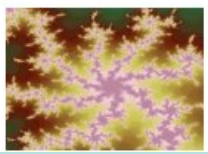
Architecture

City

Sport&Games

Botany

Animals

Mathematics 

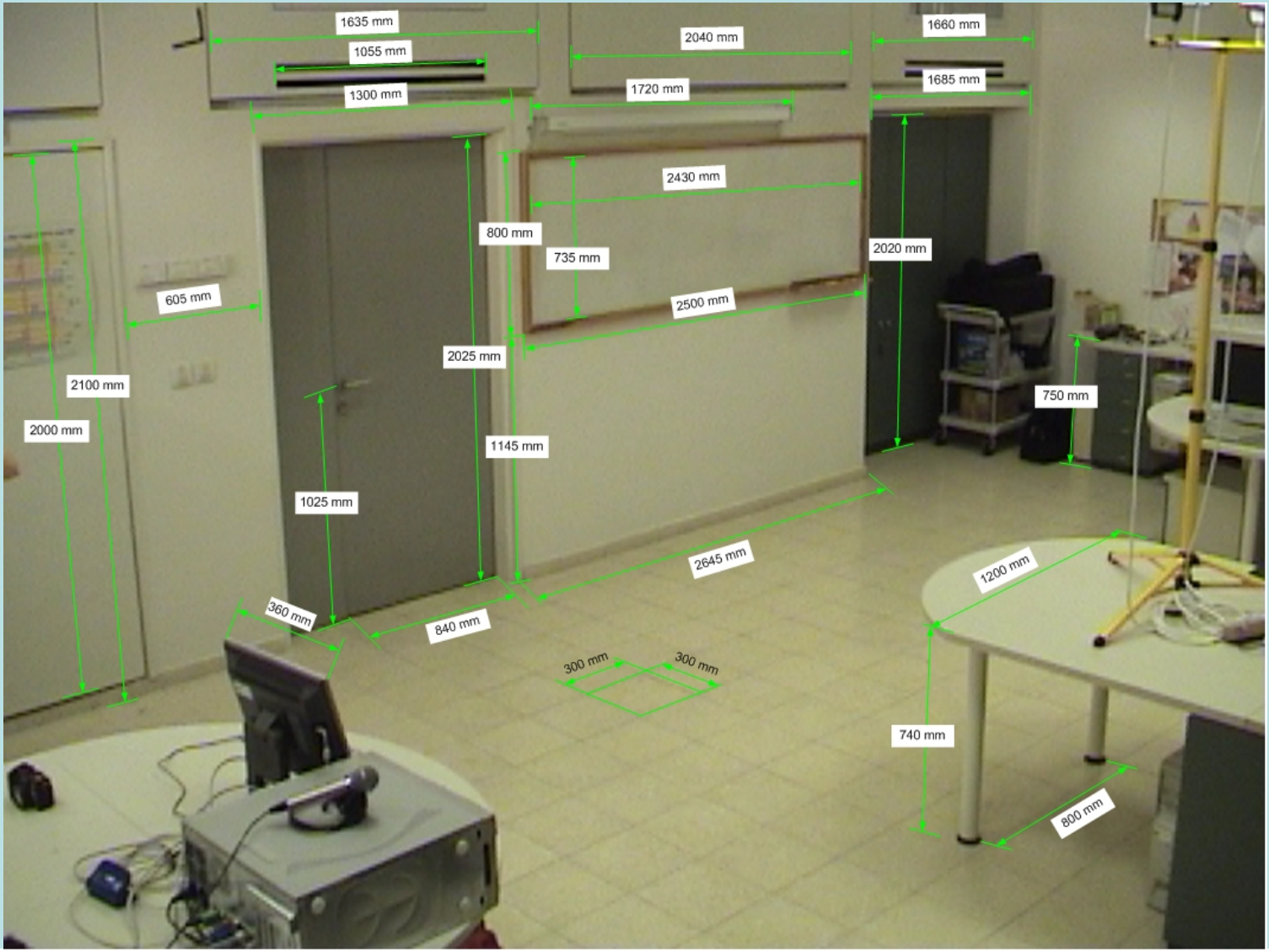
People

Sixth Framework Programme
Information Society Technologies

TAU-DANCE

- Videos of 10 dance types viewed from 5 cameras
- Dance1_View3_mpeg4v1_768x576.avi
- Dance1_View5_mpeg4v1_768x576.avi

Supplementary Material for TAU-Dance



Useful web addresses

- MUSCLE benchmarking repository and information on the CIS coin competition:
  http://muscle.prip.tuwien.ac.at
- ImageCLEF:
  http://ir.shef.ac.uk/imageclef/2006/
- ImagEVAL:
  http://www.imageval.org