TREC 2004 Video Retrieval Evaluation
Introductions

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Origins

- Problem:
  - Rapidly growing quantities of digital video
  - Increasing research in content-based retrieval from digital video
  - But no common basis for evaluation/comparison of approaches
- Approach:
  - Find as much video data as possible and make it available to the community of researchers
  - Use the data to build an open metrics-based evaluation in the Cranfield/TREC tradition
  - Invite participation and see what happens…

Goals

- Promote progress in content-based retrieval from large amounts of digital video
- Answer some questions:
  - How can systems achieve such retrieval (in collaboration with a human)?
  - How can one reliably benchmark such systems?

Evolution… 2001

- TREC 2001 Video retrieval track
- Data: 11 hrs (OpenVideo, NIST)
- 2 Tasks:
  - Shot boundary determination
  - Search
    - Fully automatic
    - Interactive
- Participants: 12 finishers

Evolution… 2002

- TREC 2002 Video retrieval track
- Data: 73 hrs (Prelinger Archive, BBC)
- 3 Tasks:
  - Shot boundary determination
  - High-level feature extraction (10)
  - Search (manual and interactive)
- Participants: 17 finishers
- New:
  - Common shot reference defines unit of retrieval
  - Common key frames
  - Shared features, ASR output

Evolution… 2003

- TRECVID Workshop: start 2-year cycle
- Data: 133 hrs (1998 ABC/CNN news + C-SPAN)
- 4 Tasks:
  - Shot boundary determination
  - High-level feature extraction (17)
  - Story segmentation and classification
  - Search (manual and interactive)
- Participants: 24 finishers
- New:
  - Wessel Kraaij (TNO-TPD) joins Alan Smeaton as co-coordinator
  - Common annotation effort
  - Advisory committee

Advisory committee

- John Eakins (University of Northumbria at Newcastle)
- Peter Enser (University of Brighton)
- Alex Hauptmann (CMU)
- Annemieke de Jong (Netherlands Institute for Sound & Vision)
- Michael Lew (Leiden Insitute of Advanced Computer Science)
- Georges Quénot (CLIPS-IMAG Laboratory)
- John Smith (IBM)
- Richard Wright (BBC)

Evolution… 2004

- TRECVID Workshop: complete 2-year cycle
- Data: 70 hrs (1998 ABC/CNN news) for test
- 4 Tasks:
  - Shot boundary determination
  - High-level feature extraction (10)
  - Story segmentation
  - Search (manual and interactive)
- Participants: 33 finishers
- New:
  - More unofficial automatic search
  - Centralized collection of interactive seacher info

33 Finishers

AIIA Laboratory	Greece	SB	--	--	--
Bilkent University	Turkey	--	--	--	SE
Carnegie Mellon University	US	--	--	FE	SE
Center for Research & Technology Hellas/ITI	Greece	--	--	--	SE
CLIPS-LSR-LIS	France	SB	SS	FE	SE
CWI / University of Twente (aka Lowlands)	the Netherlands	--	--	--	SE
IDIAP	Switzerland	--	--	FE	--
Dublin City University	Ireland	--	--	--	SE
Eurecom	France	--	--	FE	--
Fraunhofer (Heinrich Hertz) Institute	Germany	SB	--	--	--
FX Palo Alto Laboratory	US	SB	--	--	SE
IBM Research	US	SB	SS	FE	SE
Imperial College, London	UK	SB	SS	FE	SE
Indiana University	US	--	--	--	SE
KDDI R&D Laboratories	Japan	SB	SS	--	--
Mediamill/University of Amsterdam	the Netherlands	--	--	FE	SE

33 Finishers

National Cheng Kung Univ. ELITE Center	Taiwan	--	SS	--	--
National Institute of Informatics	Japan	--	--	FE	--
National Taiwan University	Taiwan	--	--	--	SE
National University of Singapore	Singapore	--	--	FE	SE
RMIT University	Australia	SB	SS	--	--
SAMOVA/IRIT/UPS	France	SB	--	--	--
Tsinghua National Lab for I & T	China	SB	--	FE	--
University of Bremen/TZI	Germany	SB	--	--	--
University of Bordeaux	France	SB	--	--	--
University of Central Florida	US	--	SS	FE	--
University of Iowa	US	SB	SS	FE	--
Queen Mary, University of London	UK	SB	--	--	SE
University of Maryland	US	SB	--	--	--
University of North Carolina @ Chapel Hill	US	--	--	--	SE
University of Oulu	Finland	--	--	--	SE
University of Sao Paolo/IME	Brazil	SB	--	--	--
University Rey Juan Carlos	Spain	SB	--	--	--

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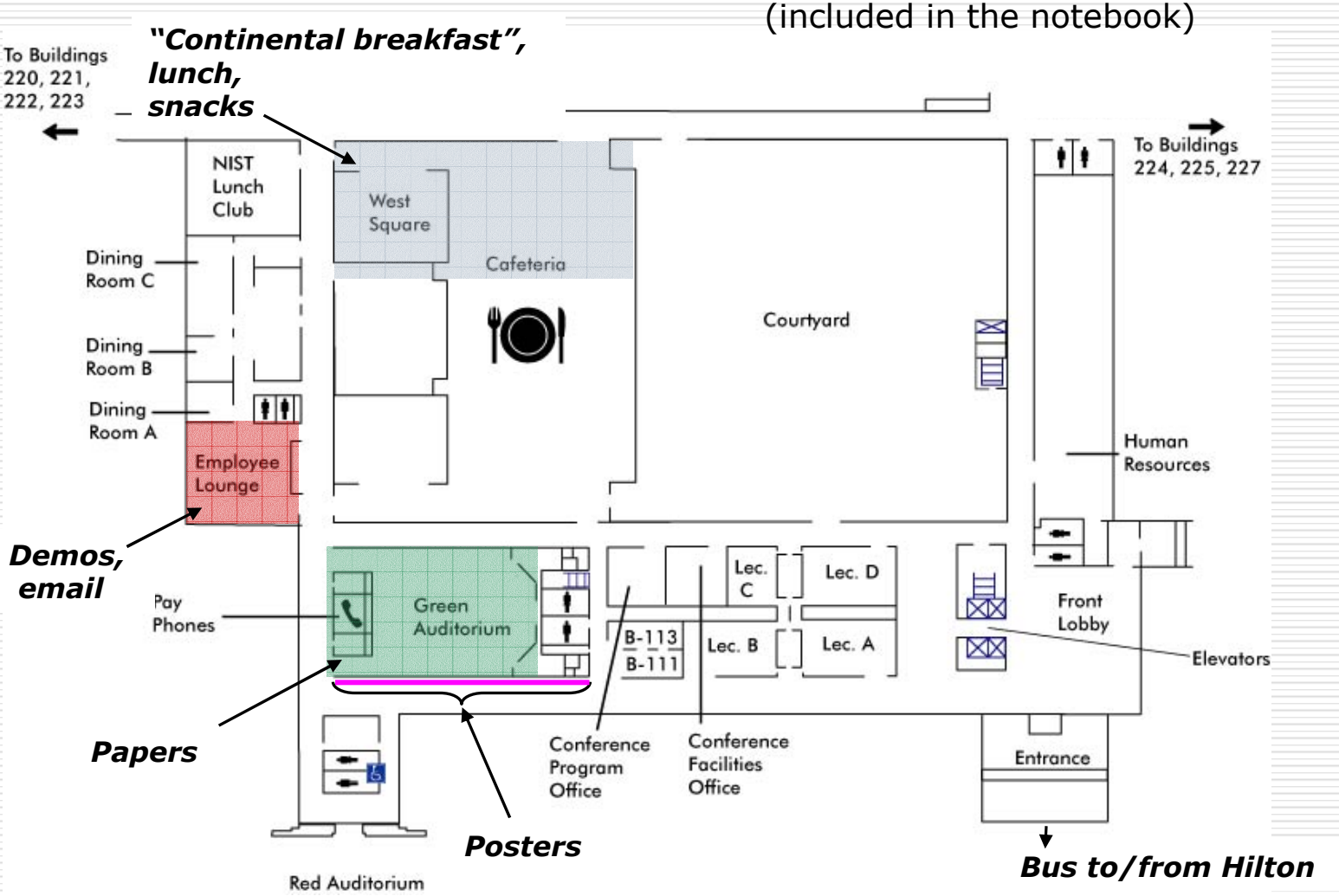
- Georges Quénot at CLIPS-IMAG
- Jean-Luc Gauvain at LIMSI
- CMU for donating a large set of low-level features

Agenda: Day 1

- Arranged by task
- Time for discussion of approaches & evaluation
- Monday
  - Shot boundary detection
  - Status report on the search for 2005 data
  - High-level feature extraction
  - Lunch
  - Story segmentation
  - Demos & Posters
  - Workshop supper (La Panetteria in Bethesda)

Map: NIST Admin. Building, 1st Floor

(included in the notebook)



Agenda: Day 2

- Tuesday
  - Search
    - Interactive
    - Manual
    - Automatic
  - Lunch
  - Feedback on 2003/4 cycle – what's been learned?
    - How to build systems to accomplish the tasks
    - How to evaluate such systems
  - Proposals/suggestions from participants for 2005