TREC Video Retrieval Evaluation
TRECVID 2010

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Goals and strategy

☐ Promote progress in content-based analysis, detection, retrieval in large amounts of digital video

  ■ combine multiple errorful sources of evidence
  ■ achieve greater effectiveness, speed, usability

☐ Confront systems with unfiltered data and realistic tasks

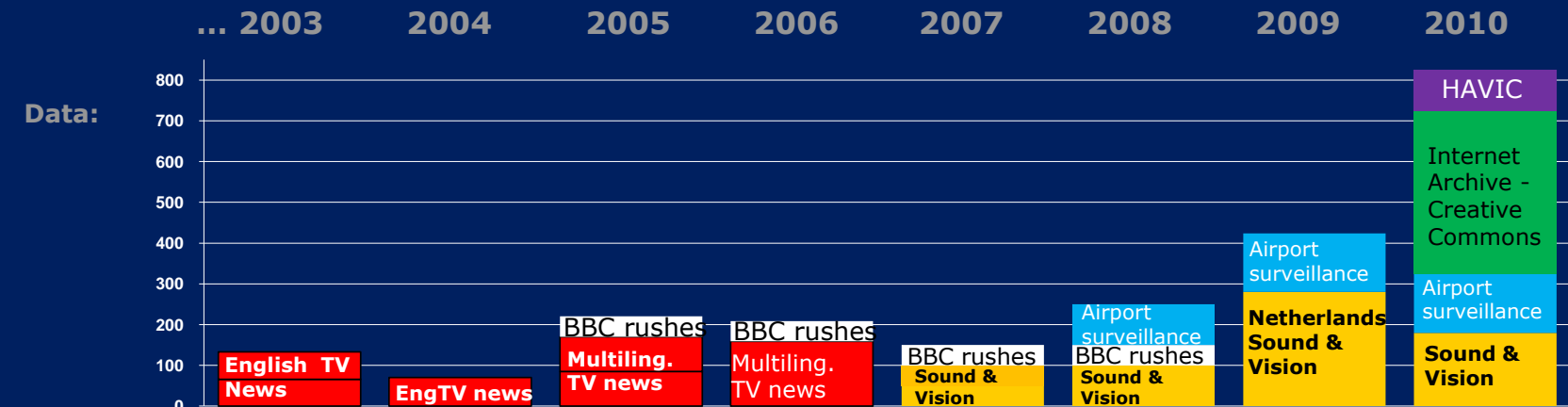☐ Measure systems against human abilities

Goals and strategy

☐ Focus on relatively high-level functionality – near that of an end-user application like interactive search
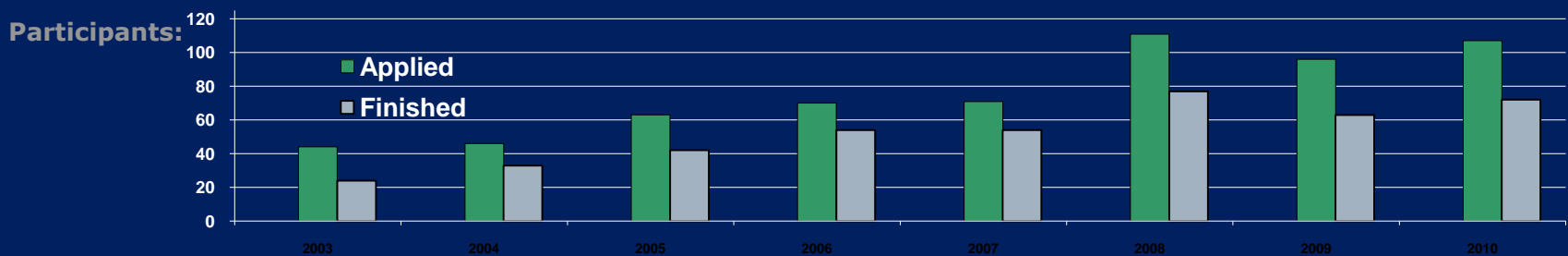
☐ Supplement with focus on supporting and related automatic components:
- ■ Automatic search, High-level feature detection
- ■ Content-based copy detection, Event detection

☐ Integrate and profit from advances in low-level functionality, more narrowly tested elsewhere:
- ■ face recognition, text extraction, object recognition, etc.

TRECVID Evolution

... 2003   2004   2005   2006   2007   2008   2009   2010

Data:

Data chart (in arbitrary units, scale 0–800):

- **2003:** English TV News (red, ~100)
- **2004:** EngTV news (red, ~50)
- **2005:** BBC rushes (white) / Multiling. TV news (red, ~150)
- **2006:** BBC rushes (white) / Multiling. TV news (red, ~150)
- **2007:** BBC rushes (white) / Sound & Vision (yellow, ~100)
- **2008:** Airport surveillance (light blue) / BBC rushes (white) / Sound & Vision (yellow, ~250)
- **2009:** Airport surveillance (light blue) / Netherlands Sound & Vision (yellow, ~400)
- **2010:** HAVIC (purple) / Internet Archive – Creative Commons (green) / Airport surveillance (light blue) / Sound & Vision (yellow, ~780)

Tasks:

Shot boundaries
Ad hoc search
Features/semantic indexing
Stories   Camera motion
BBC rushes   Summaries
Copy detection
Surveillance events
Known-item search
Instance search pilot
Multimedia event detection pilot

Participants:

Participants bar chart (Applied = green, Finished = gray):

Year	Applied	Finished
2003	~44	~24
2004	~46	~33
2005	~63	~42
2006	~70	~54
2007	~71	~54
2008	~111	~77
2009	~95	~63
2010	~106	~72

2010: Details

- **Data:**
  - 400 hrs Internet Archive videos with metadata (~8000, 10s – 4.1 mins)
  - 180 hrs - Netherlands Institute for Sound and Vision (S&V)
  - 150 hrs of airport surveillance data - UK Home Office
  - 115 hrs of HAVIC (Internet multimedia) videos (~ 3500)
- **6 evaluated tasks**
  - Internet Archive
    1. Semantic indexing - 130 features submitted, 30 evaluated
    2. Known-item search – 120 development topics, 300 test topics
    3. Content-based copy detection - 11256 audio+video queries
  - S&V news magazine, cultural, educational/entertainment
    4. Instance search (automatic, interactive) - 22 topics
  - Airport surveillance video
    5. Surveillance event detection – 7 events (participants chose 3)
  - HAVIC
    6. Multimedia event detection – 3 events (participants chose 1 or more)

TV2010 Finishers

# Groups Finished	Task code	Task name
22	CCD	Copy detection
11	SED	Surveillance event detection
39	SIN	Semantic indexing
15	KIS	Known-item search
5	MED	Multimedia event detection pilot
15	INS	Instance search pilot

TV2010 Finishers

```
--- *** KIS *** --- SIN    Aalto University School of Science and Technology
--- --- --- --- --- SIN    Aristotle University of Thessaloniki
CCD --- --- --- --- ---    Asahikasei Co.
CCD INS *** *** --- ***    AT&T Labs - Research
--- --- --- *** SED ---    Beijing Jiaotong University
CCD INS KIS --- SED SIN    Beijing University of Posts and Telecom.-MCPRL
CCD *** --- *** --- SIN    Brno University of Technology
--- *** KIS MED SED SIN    Carnegie Mellon University - INF
*** *** KIS --- --- ***    Chinese Academy of Sciences - MCG
CCD --- KIS --- *** SIN    City University of Hong Kong
--- *** --- MED --- SIN    Columbia University / UCF
--- --- --- --- SED ---    Computer Research Inst. of Montreal
--- *** --- --- --- SIN    DFKI-MADM
--- INS KIS --- --- ---    Dublin City University
--- *** --- *** *** SIN    EURECOM
--- *** --- --- --- SIN    Florida International University
--- *** --- --- --- SIN    France Telecom Orange Labs (Beijing)
--- --- --- --- --- SIN    Fudan University
*** --- --- --- --- SIN    Fuzhou University
*** INS KIS --- --- ***    Hungarian Academy of Sciences
CCD *** *** MED --- ***    IBM T. J. Watson Research Center / Columbia
--- INS KIS MED --- SIN    Informatics and Telematics Inst.
CCD *** *** *** *** ***    INRIA-TEXMEX
--- --- --- *** SED SIN    INRIA-willow
--- *** --- --- --- SIN    Inst. de Recherche en Informatique de Toulouse - Equipe SAMoVA
```

** : group applied but didn't submit

TV2010 Finishers

```
--- --- KIS --- --- ---      Inst. for Infocomm Research
CCD --- --- --- --- ---      Istanbul Technical University
--- INS --- --- *** SIN      JOANNEUM RESEARCH
--- INS KIS MED *** SIN      KB Video Retrieval
CCD --- --- *** *** ***      KDDI R&D Labs and SRI International
--- --- --- --- --- SIN      Laboratoire d'Informatique Fondamentale de Marseille
--- INS *** *** --- SIN      Laboratoire d'Informatique de Grenoble for IRIM
--- --- --- --- --- SIN      LSIS / UMR CNRS & USTV
--- --- --- MED --- ---      Mayachitra, Inc.
CCD INS --- --- *** ---      Nanjing University
CCD --- --- --- --- ---      National Chung Cheng University
CCD INS *** *** *** SIN      National Inst. of Informatics
--- *** --- --- --- SIN      National Taiwan University
--- *** KIS *** *** ---      National University of Singapore
*** *** *** *** SED SIN      NHK Science and Technical Research Laboratories
--- --- --- MED --- ---      Nikon Corporation
CCD --- --- --- --- ---      NTNU and Academia Sinica
CCD --- --- --- --- ---      NTT Communication Science Laboratories-CSL
--- INS --- --- --- ---      NTT Communication Science Laboratories-NII
--- --- KIS --- --- SIN      NTT Communication Science Laboratories-UT
--- *** *** --- --- SIN      Oxford/IIIT
CCD --- --- --- SED ---      Peking University-IDM
--- --- --- *** --- SIN      Quaero consortium
--- --- --- --- SED ---      Queen Mary, University of London
--- --- *** --- --- SIN      Ritsumeikan University
```

** : group applied but didn't submit

-- : group didn't apply for the task

TV2010 Finishers

```
CCD --- *** --- --- ***    Shandong University
--- --- --- --- --- SIN    SHANGHAI JIAOTONG UNIVERSITY-IS
--- --- --- --- SED ---    Simon Fraser University
CCD --- --- --- *** ***    Sun Yat-sen University - GITL
CCD --- --- --- --- ---    Telefonica Research
*** *** *** *** SED SIN    Tianjin University
--- INS --- --- --- ---    TNO ICT - Multimedia Technology
*** INS --- --- --- ---    Tokushima University
--- *** --- *** SED SIN    Tokyo Inst. of Technology + Georgia Inst. of Technology
CCD *** *** *** *** ***    Tsinghua University-IMG
CCD *** --- --- *** SIN    TUBITAK - Space Technologies Research Inst.
--- --- --- --- --- SIN    Universidad Carlos III de Madrid
--- INS KIS *** *** SIN    University of Amsterdam
CCD --- --- --- --- ---    University of Brescia
CCD --- --- --- --- ---    University of Chile
--- *** *** *** *** SIN    University of Electro-Communications
--- --- --- *** *** SIN    University of Illinois at Urbana-Champaign & NEC Labs.America
*** *** KIS --- --- ---    University of Klagenfurt
*** *** --- *** --- SIN    University of Marburg
*** *** *** --- *** SIN    University of Sfax
--- --- *** --- *** SIN    Waseda University
*** INS *** *** *** ***    Xi'an Jiaotong University
*** --- KIS *** *** ***    York University
```

** : group applied but didn't submit

-- : group didn't apply for the task

Support

The running of TRECVID 2010 has been funded directly by:

- ☐   National Institute of Standards and Technology (NIST)

- ☐   Intelligence Advanced Research Projects Activity (IARPA)

- ☐   Department of Homeland Security (DHS)

TRECVID is only possible because of the additional efforts of many individuals and groups around the world.

Additional resources and contributions

☐ Brewster Kahle (Internet Archive's founder) and R. Manmatha (U. Mass, Amherst) suggested in December of 2008 that TRECVID take another look at the resources of the Archive.

☐ Cara Binder and Raj Kumar @ archive.org helped explain how to query and download automatically from the Internet Archive.

☐ Georges Quénot with Franck Thollard, Andy Tseng, Bahjat Safadi from LIG and Stéphane Ayache from LIF shared coordination of the semantic indexing task and organized additional judging with support from the Quaero program

☐ Georges Quénot and Stéphane Ayache again organized a collaborative annotation of 130 features.

☐ Shin'ichi Satoh at NII along with Alan Smeaton and Brian Boyle at DCU arranged for the mirroring of the video data

Additional resources and contributions

- ☐ Colum Foley and Kevin McGuinness (DCU) helped segment the instance search topic examples and set up the oracle at DCU for interactive systems in the known-item search task.

- ☐ The LIMSI Spoken Language Processing Group and VexSys Research provided ASR for the IACC.1 videos.

- ☐ Laurent Joyeux (INRIA-Roquencourt) updated the copy detection query generation code.

- ☐ Matthijs Douze from INRIA-LEAR volunteered a camcorder simulator to automate the camcording transformation for the copy detection task.

- ☐ Emine Yilmaz (Microsoft Research) and Evangelos Kanoulas (U. Sheffield) updated their xinfAP code (sample_eval.pl) to estimate additional values and made it available.

Agenda: Day 1

❑ Arranged by task

❑ Time for discussion of approaches & evaluation

❑ Monday

    ❑ Intros, thanks, etc.

    ❑ Known-item search

    ❑ Instance search

    ❑ Lunch
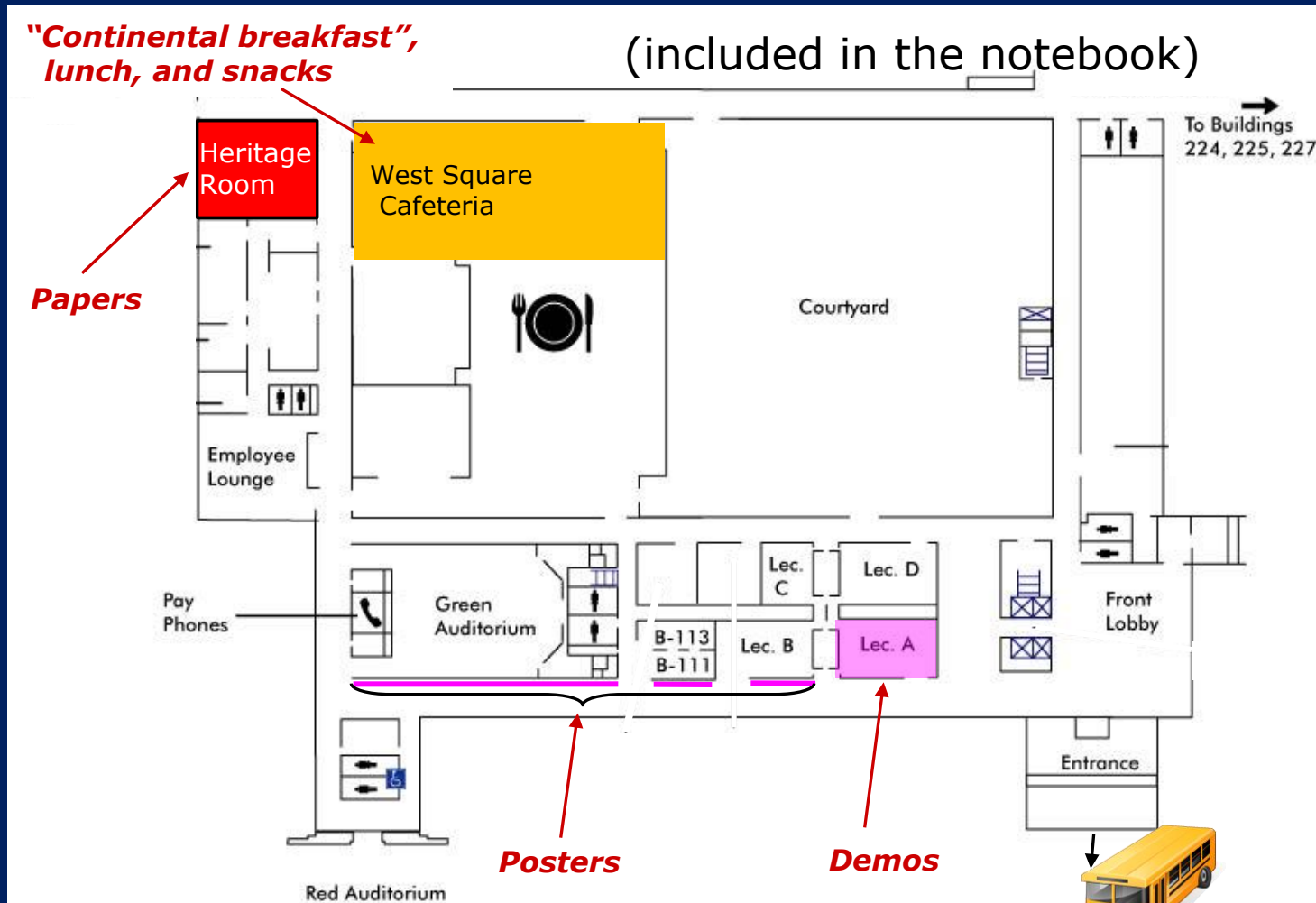
    ❑ Semantic indexing

Agenda: Day 2

- Tuesday
  - Surveillance event detection
  - Multimedia event detection
  - Lunch
  - Multimedia event detection (conclusion)
  - TRECVID's impact – a bibliometric study
  - Poster/demo boaster
  - Posters and demos
  - Workshop dinner

Agenda: Day 3

❑ Wednesday

    ❑ Copy detection

    ❑ TRECVID planning

    ❑ Workshop close

    ❑ Lunch

Map: NIST Admin. Building, 1st Floor

"Continental breakfast", lunch, and snacks

(included in the notebook)

Heritage Room

Papers

West Square Cafeteria

Courtyard

To Buildings 224, 225, 227

Employee Lounge

Pay Phones

Green Auditorium

Lec. C

Lec. D

Front Lobby

B-113
B-111

Lec. B

Lec. A

Entrance

Red Auditorium

Posters

Demos

Bus to/from the Holiday Inn

Reminders

- ❑ If you are driving to NIST rather than taking the NIST bus, you don't need to stop at the Visitor Center tomorrow.
    - ❑ Just show you conference badge and photo ID at the gate as you drive in.
    - ❑ Wear your badge at all times while at NIST
- ❑ Lunch will be in the NIST West Square Cafeteria
    - ❑ Your ticket (from your badge holder) will be collected as you enter the cafeteria
    - ❑ Choose whatever you want from the buffet and proceed to a table
- ❑ The workshop supper is close by at Dogfish Head Alehouse (upstairs). This is a casual restaurant. Check the agenda for the bus schedule.
    - ❑ One ticket is included with your registration
    - ❑ You can buy additional tickets at the registration desk
    - ❑ If you don't plan to attend, please turn in your ticket at the registration desk so someone else can attend.
- ❑ If you are giving a talk, please have your computer connected or presentation loaded BEFORE the session begins.
- ❑ Poster supplies are available at the registration desk. Posters go up anywhere on the numbered poster wall (see map). Demos go in Lecture Room A (see map).
- ❑ Wireless access info is in your badge holder. Do not share your password.