

Designing Novel Applications Inspired by Emerging Media Technologies

Framing the Development of Novel Technologies

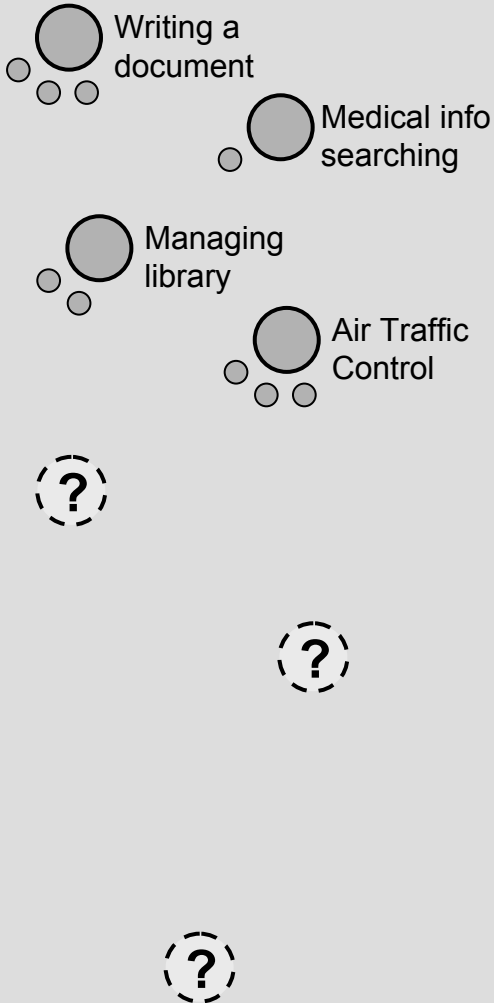
Hyowon Lee

CLARITY: Centre for Sensor Web Technologies
Dublin City University

PROBLEM

DOMAIN

(on users, tasks, etc.)



SOLUTION

INTERACTION DESIGN

- General Design Knowledge

:

Interaction Platform-specific Knowledge

Desktop/Web

- Design principles
- Usability guidelines/heuristics
- Designer's skill/experience

Mobile

TableTop

Interactive TV

Wall

Embedded Appliance

Inventory of TECHNOLOGIES

(mainstream, robust/proven)

- Computation
- Database
- Web
- 3-D rendering
- Streaming

:

NEW TECHNOLOGIES

- Multimedia
- Semantic Web
- Sensor Web
- Personalisation
- Sentiment Analysis
- Teleportation(?)

:

DOMAIN

(on users, tasks)

Writing a document

Managing library

Mobile Interaction Characteristics:

- Small screen
- Awkward input mechanism
- Distraction



- Reduce required attention
- Quick return
- Reduce browsing effort

:



media
 ntic Web
 r Web
 nalisation
 ment Analysis
 eportation(?)

:

DOMAIN

(on users, t

History of TECHNOLOGIES

(stream, robust/proven)

Computation

Tabletop Interaction Characteristics:

- Horizontal
- Multi-user, Collaborative setting



- Task allocation (division)
- Workspace awareness
- Coordination (eg. conflict)



Photo from Dialog Table, Walker Art Center <http://dialogtable.com/>

multimedia

Semantic Web

Sensor Web

Personalisation

Sentiment Analysis

Teleportation(?)

:

Writing documents

Managing libraries



Inventory of TECHNOLOGIES
(mainstream, robust/proven)

TV Interaction Characteristics:

“Lean-back Interaction”

- Viewed 2-3m away
- Use of remote control



- Large widgets, large text
- Minimal, simple interaction
- Multiple levels of attention

:

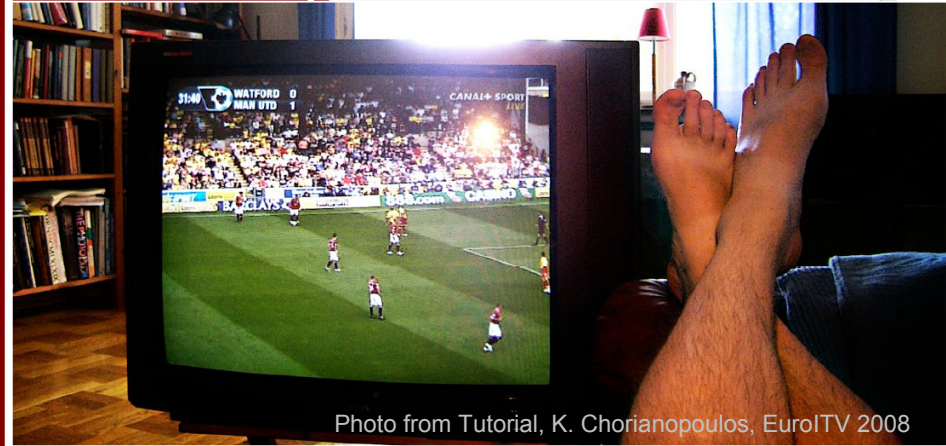


Photo from Tutorial, K. Chorianopoulos, EuroITV 2008

NEW TECHNOLOGIES

- Multimedia
- Semantic Web
- Sensor Web
- Personalisation
- Sentiment Analysis
- Teleportation(?)

:

DOM

(on use

Inventory of TECHNOLOGIES

Interactive Wall Characteristics:

- Large
- Public
- Multi-user setting



- **Focal/peripheral interplay**
- **Coordination (conflict resolution)**

:



- Multimedia
- Semantic Web
- Sensor Web
- Personalisation
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- Teleportation(?)

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PROBLEM

DOMAIN

(on users, tasks, etc.)

- Writing a document
- Medical info searching
- Managing library
- Air Traffic Control



Imagined practice
New practice



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NEW TECHNOLOGIES

● **Multimedia**

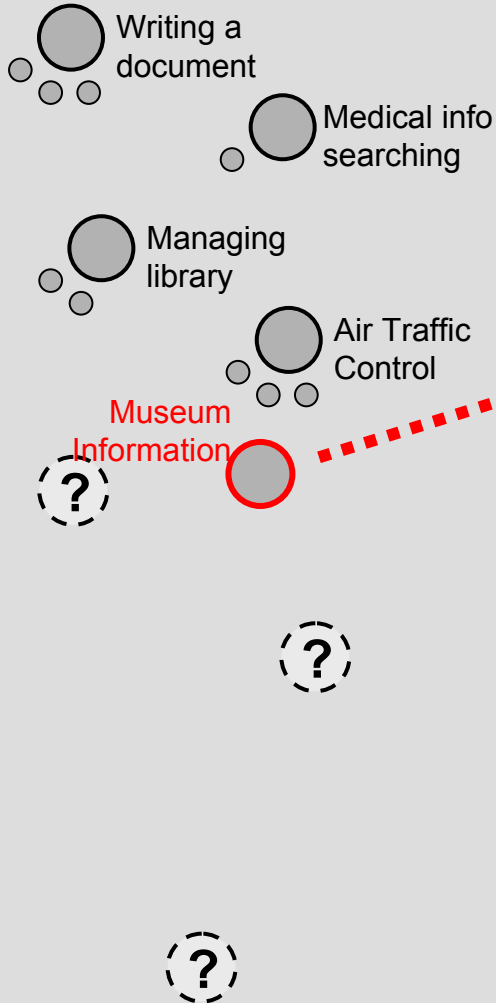
- Semantic Web
- Sensor Web
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NEW TECHNOLOGIES

● **Multimedia - SIFT tool***

- Semantic Web
- Sensor Web
- Personalisation
- Sentiment Analysis
- Teleportation(?)

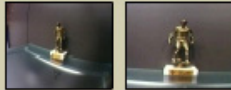
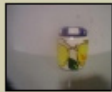
:

MY PHOTOS

> UPLOAD <

Photos depicting the same artefact have been grouped together. Drag photos around to modify the grouping.

GROUP | UNGROUP

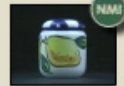


MATCHED ATREFACTS



White floral vase

Iznik, Turkey



Ceramic salt cellar

Clonakilty, Co. Cork



Cloisonné vase

Japan, probably Nagoya



Blue earthenware jug

Smithfield, Dublin 7



Cream ceramic jug

Thurles, Co. Tipperary

▼ MORE ▲

WHITE FLORAL VASE

Collection Islamic Art

Period 1570-90

Location Iznik, Turkey

Description A novel and distinctive feature of Ottoman art is the use of recognisable garden flowers. Previously, floral motifs had been highly stylised and arranged in formalised patterns. By contrast, the flowers on this vase were painted almost as if they were growing from the ground and swaying in a spring breeze.



◀ 360° VIEW ▶

Photos by others

Total 12 photos

Following are photos of this artefact taken by other visitors of the museum

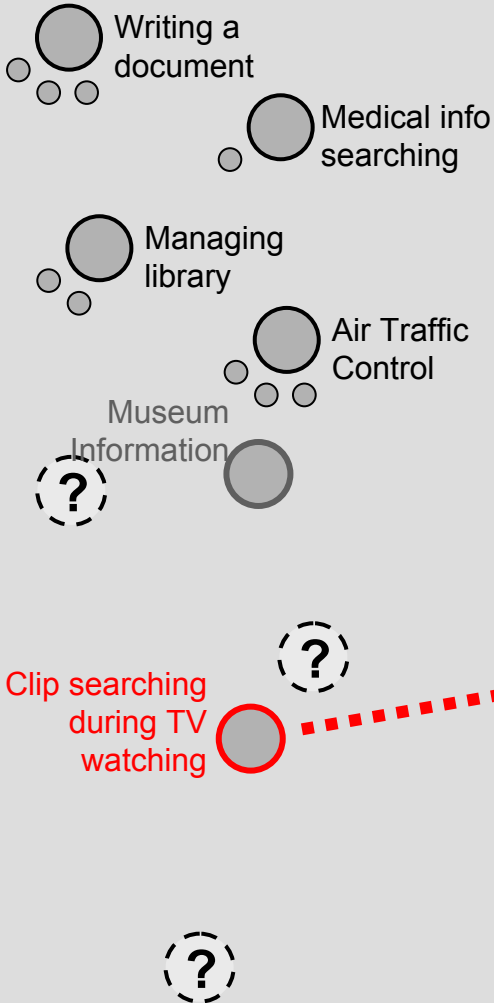


Blighe M, Sav S, Lee H and O'Connor N. Mo Músaem Fíorúil: A Web-based Search and Information Service for Museum Visitors. ICIAR 2008 - International Conference on Image Analysis and Recognition, Povoia de Varzim, Portugal, 25-27 June 2008.

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NEW TECHNOLOGIES

● Multimedia

- - Video indexing
- - Content similarity
- - Web connectivity
- Personalisation
- Sentiment Analysis
- Teleportation(?)

:



Lee H, Ferguson P, Gurrin C, Smeaton A.F, O'Connor N and Park H. Balancing the Power of Multimedia Information Retrieval and Usability in Designing Interactive TV. *uxTV 2008 - International Conference on Designing Interactive User Experiences for TV and Video*, Mountain View, CA, 22-24 October 2008.

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● **Multimedia**

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- **- Content similarity**

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NEW TECHNOLOGIES

● **Multimedia**

- - **Video indexing**
- - **Content similarity**

- Personalisation
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DAY VIEW

WEEK VIEW

MONTH VIEW

YEAR VIEW

Week 2 - June 2009

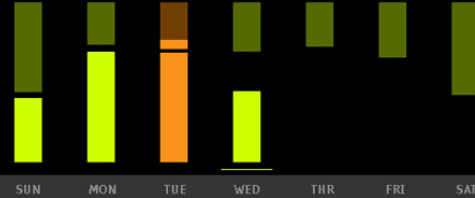
6:39pm

18°C Indoor

POWER CONSUMPTION THIS WEEK

EXPECTED USAGE : 214.82 Units (€86)
 CONSUMED SO FAR : 85.17 Units (€53)

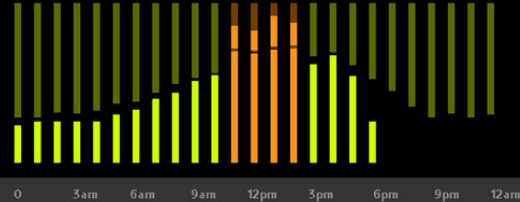
- Air condition On
- Refrigerator On
- Oven 6
- TV 12
- Power shower 5
- Hair dryer 5
- Kettle 21



Power Consumption Today

EXPECTED USAGE : 32.61 Units (€17)
 CONSUMED SO FAR : 21.75 Units (€11)

- Air condition On
- Refrigerator On
- Oven 1
- TV 2
- Power shower 2
- Hair dryer 1
- Kettle 13



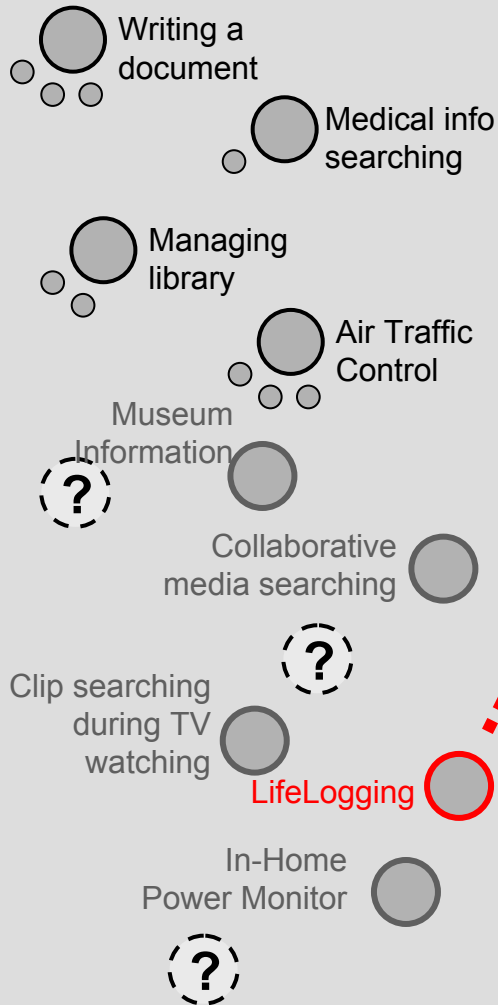
LAYOUT

OPTIONS

PROBLEM

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NEW TECHNOLOGIES

● **Multimedia**

- **- Event Detection & Similarity**
- Personalisation
- Sentiment Analysis
- Teleportation(?)

:

CALENDAR

◀ MAY ▶ 2006

S	M	T	W	T	F	S
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

DURATION ▶

CAPTION SEARCH

WEEKLY SUMMARY

Selected day is shown below in the context of whole week. Move mouse cursor over to see other similar Events in the week

S

M

T

W

T

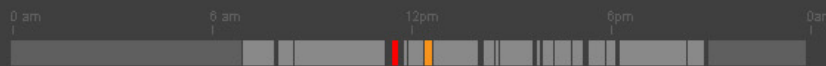
F

S

29 May 2006

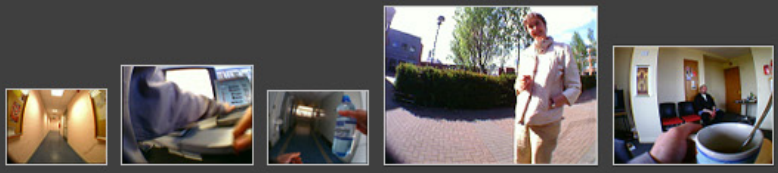
19
EVENTS

Drag the slider bar to adjust the number of Important Events



I was chatting with Gareth on the conference in July. Quite a few chats today! ↻ ✕

ADD TO FAVE | FIND SIMILAR



Lee H, Smeaton A.F, O'Connor N, Jones G, Blighe M, Byrne D, Doherty A and Gurrin C. Constructing a SenseCam Visual Diary as a Media Process. Multimedia Systems Journal, 14(6), 2008.

MY ACCOUNT | SIGN OUT | ABOUT

F FAVOURITE (25)

SIMILAR EVENTS

92 Similar Events have been found. Click on the photo to replay all photos within the Event.

| 1 | 2 | 3 | 4 | 5 | 6 |

Sort by: TIME | SIMILARITY | #PEOPLE

- 18:20 (Duration: 08m 43s)
14 APR 2006 ▶
- 13:45 (Duration: 14m 05s)
14 APR 2006 ▶
- F 10:02 (Duration: 23m 56s)
13 APR 2006 ▶
- 14:39 (Duration: 15m 30s)
12 APR 2006 ▶
- F 11:25 (Duration: 06m 21s)
12 APR 2006 ▶
- 09:52 (Duration: 01m 03s)
12 APR 2006 ▶
- 15:19 (Duration: 21m 10s)

Conclusion

In designing novel applications that incorporate novel technologies:

Be aware of exciting new technologies

Plenty solutions but no problem?

Build working prototypes first, THEN worry about fitting them to real world

Lack of domain knowledge shouldn't be the bottleneck in exploring new possibilities

Design expertise spanning multiple platform