ACM SIG Multimedia Strategic Retreat

MM'03 Report

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Background

- Retreat idea originated at MM'01 in Ottawa

    Research direction and SIGMM activities

- Organization

    Ramesh Jain & Larry Rowe organized meeting

    SIGMM Executive Committee advise & consent

    Limited number of attendees from academia and industry

- Retreat Input

    Position papers distributed before the retreat

- Retreat Output

    Report to MM'03 conference (Wed afternoon)

    Written report summarizing recommendations (forthcoming)

Participants

Sid Ahuja (Lucent Bell Labs)

Brian Bailey (UIUC)

Dick Bultermann (CWI)

Shih-Fu Chang (Columbia)

Tat-Seng Chua (Nat. U of Singapore)

Marc Davis (U.C. Berkeley)

Nevenka Dimitrova (Philips Research)

Wolfgang Effelsberg (U Mannheim)

Jim Gemmell (Microsoft Research)

Nicolas Georganas (U of Ottawa)

Forouzan Golshani (Arizona State U)

Ramesh Jain (Georgia Inst. Technology)

Martin Kienzle (IBM Research)

Wolfgang Klas (U of Vienna)

Joe Konstan (U of Minnesota)

Dwight Makaroff (U of Saskatechwan)

Ketan Mayer-Patel (U of North Carolina)

Klara Narhstedt (UIUC)

Arturo Pizano (Siemens Corp. Research)

Thomas Plageman (U of Oslo)

Lawrence A. Rowe (U.C. Berkeley)

Henning Schulzrinne (Columbia)

Ralf Steinmetz (Darmstadt U of Technology)

Michael Vernick (Avaya Research)

Harrick Vin (U of Texas at Austin)

Lynn Wilcox (Fx PAL)

Retreat Plan

○ **Multimedia Research Directions (Friday)**

Discuss past successes and failures of multimedia research, and establish directions for future research including *Grand Challenges* that the research community should attempt to conquer.

○ **SIG Multimedia Future Directions (Saturday)**

Discuss current state of the SIG and initiatives for the further development of the the research and education community.

Develop specific actions and recruit volunteers to take responsibility for them

Multimedia Research Directions
Schedule for Friday

8:30 – 9:30	**Welcome**
	Introductions
9:30 – 10:00	**Research Viewpoints - 1**
	Nicolas Georganas (U of Ottawa)
	Sid Ahuja (Lucent)
	Shi-Fu Chang (Columbia)
10:00 – 10:30	**Morning Break**
10:30 – 11:00	**Research Viewpoints – 2**
	Lynn Wilcox (FX Pal)
	Dick Bultermann (CWI)
	Tat-Seng Chua (National U of Singapore)
11:00 – 12:00	**Group Discussion**
12:00 – 1:30	**Lunch**
1:30 – 3:00	**Breakout Sessions**
3:00 – 3:30	**Afternoon Break**
3:30 – 5:00	**Group Discussion**
6:00 – 9:00	**Dinner** – Spenger's

SIG Multimedia Directions
Schedule for Saturday

8:30 – 9:00	**Further Thoughts on Multimedia Research Directions**	
9:00 – 10:00	**ACM and SIGMM Report**	
	Larry Rowe (UC Berkeley)	
10:00 – 10:30	**Morning Break**	
10:30 – 12:00	**Breakout Sessions**	
12:00 – 1:00	**Lunch**	
1:00 – 3:00	**Group/Breakout Discussion**	
3:00 – 3:30	**Afternoon Break**	
3:30 – 5:00	**Group Discussion?**	

Multimedia Research Directions

○ Unifying Themes
○ Grand Challenges
○ Driving Applications

Surprising agreement about the
important issues
…but disagreement on the details

Work in Progress

Unifying Themes

○ Multiple discrete and time-based media

    Must involve multiple media

    Different media are correlated, not necessarily time-based
    May not be co-located

○ Integration and adaptation

    Cross-layer and multi-level

    Transparent delivery of dynamic content

    Vision: ubiquitous interaction with multimedia applications

○ Multi-modal interactive applications

    Content processing, indexing, and search
    Data and knowledge management and delivery
    Communication between humans
    Human-computer interactions

Grand Challenges

○ Authoring complex multimedia titles should be as easy as using a word processor or a drawing program

○ Interacting with remote people and environments should be nearly the same as interacting locally

○ Capturing, storing, finding, and using digital media should be a natural activity in our computing environment

Grand Challenges

○ Authoring complex multimedia titles should be as easy as using a word processor or a drawing program

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Discussion

○ **System architecture**

   Zero-effort seamless configuration and interaction of multimedia devices in an environment

○ **New UI metaphors**

   A multimedia UI will be more like human-to-human communication with multiple interaction modalities

○ **Content authoring tools**

   Support type-dependent tools and incorporation of new media types

   Recognize needs of end-users and experts

Discussion (cont.)

○ **"Quality of experience"**

   Not "Quality of Service"

○ **Incorporate new media**

   Examples: haptic, touch, smell, sensors, animation, etc.

○ **Digital rights management**

   Attribution as well as protection

   Access and propagation rights

   Must not inhibit research and fair-use

Discussion (cont.)

- Need shared tools and software
  - Open source and open interfaces
  - Re-use and interoperability of research results
  - Published benchmarks and repeatable experiments
  - "Demo or die!"
- Need better understanding of media theory and programming abstractions
  - What is a "first-class" data type?
- Need improved ways to capture and use digital media
  - Capture context and metadata in addition to media itself
  - Sometimes goal is information/knowledge extraction

Driving Applications

○ ## Authoring

eLearning, edutainment, eBooks, presentations, performances, interactive experiences, etc.

○ ## Immersive & interactive environments

Shared experiences with other humans (e.g., watch sports together, visit a museum, etc.), network games (?), eLearning

Video conferencing that works!

N-way, scalable collaboration tools

○ ## Media management and distribution

Personal media management, asset management for organizations, media life-cycle tools

Identification and security

One View

○ **1990's: focus on "nuts & bolts"**

   Scheduling algorithms, resource management, network protocols, etc.

   Emphasis was hardware/software support for diverse media types

○ **2000's: focus on applications**

   Use multimedia in day-to-day activities

   Author compelling interactive content

   Personal and organizational media management

   Quality of experience

Conclusions

○ Multimedia research has made great strides in the past 10 years

○ World and technology have changed dramatically

○ Future research must focus on multiple media and applications that use it

○ "Ease of use" and "quality of experience" are the evaluation criteria