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Tuesday NOVEMBER 7

8:45 am - 10:30 am

1. Conference Opening and Plenary
Silicon Snake Oil: What Multimedia is Offering
Speaker: Clifford Stoll

11:00 am - 12:30 pm

- 2A. Papers: Video Indexing and Retrieval
Chair: Forouzan Golshani, Arizona State University
Chair: Brian Smith, Cornell University
2B. Papers: Supporting Collaboration Environments
Chair: Kevin Jeffay, University of North Carolina
2P. Panel: Policy Issues in the Development of Digital Media
Chair: Barbara Simons, IBM Almaden

2:00 pm - 3:30 pm

- 3A. Papers: Cyber Communities
Chair: Hiroshi Ishii, MIT Media Lab
3B. Papers: Multimedia Storage Servers
Chair: William Tetzlaff, IBM T.J. Watson Research Center
3P. Panel: Curriculum, Education and Training about Multimedia
Chair: Ed Fox, Virginia Polytechnic Institute and State University

4:00 pm - 5:30 pm

- 4A. Papers: Authoring Flexible Documents
Chair: Franca Garzotto, Politecnico di Milano, Italy
4B. Papers: Video Processing
Chair: Harrick Vin, University of Texas at Austin
4P. Panel: Multimedia on a Shoestring: Low Bandwidth Implementations
Chair: John Danskin, Dartmouth College

Wednesday NOVEMBER 8

9:00 am - 10:30 am

- 5A. Papers: Speech and Audio Interfaces
Chair: Eve M. Schooler, California Institute of Technology
5D. Demonstrations: Networked Video
Chair: Wolfgang Effelsberg, University of Mannheim, Germany
5P. Panel: Personal Narrative Spaces
Chair: Sha Xin Wei, Stanford University

11:00 am - 12:30 pm

- 6A. Papers: Multimedia Network Tools
Chair: Jonathan Rosenberg, c|net
6D. Demonstrations: Video-centric Information Systems
Chair: Cecelia Buchanan, Washington State University
6P. Panel: User Interface Challenges of Media Design
Chair: Penny Bauersfeld

2:00 pm - 3:30 pm

- 7A. Papers: Video and Image Collections
Chair: David Boyer, Bellcore
- 7D. Demonstrations: Enabling Hardware and Software
Chair: Dean Jacobs, University of Southern California
- 7P. Panel: Multimedia, Museums and Cultural Learning
Chairs: Ranjit Makkuni, Xerox PARC
Mike Sipusic, University of California, Berkeley

4:00 pm - 5:30 pm

- 8A. Papers: Multimedia Networking
Chair: Abel Weinrib, Intel
- 8D. Demonstrations: Video Indexing
Chair: Maria Jose Perez-Luque, University of Navarre, Spain
- 8P. Panel: Multimedia and Education: Magic, Myth or Miracle Cure?
Chair: Rachele Heller, George Washington University

Thursday NOVEMBER 9

9:00 am - 10:30 am

- 9A. Papers: Video in Hypermedia
Chair: Laura Teodosio, BAM! Software, Inc.
- 9B. Papers: Synchronization... it's about Time
Chair: Arding Hsu, Siemens Corporate Research
- 9P. Panel: What's that Character doing in your Interface?
Chair: Abbe Don, Abbe Don Interactive Inc.

11:00 am - 12:30 pm

- 10A. Papers: LEARNing with MultiMedia
Chair: Vicki de Mey, Apple Computer
- 10B. Papers: Media Encoding
Chair: Brian Smith, Cornell University
Chair: Forouzan Golshani, Arizona State University
- 10P. Panel: Broadband Data Services to the Home
Chair: Gita Gopal, HP Laboratories

2:00 pm - 3:00 pm

- 11. Award Papers
Chair: Polle T. Zellweger, Xerox PARC

3:30 pm - 5:15 pm

- 12. Plenary and Closing
Follow the Artists
Speaker: Carol Peters, daVinci Time & Space

ACM MULTIMEDIA'95
November 5-9, 1995
Hyatt Regency (Embarcadero)
San Francisco, CA

THE THIRD ACM INTERNATIONAL MULTIMEDIA CONFERENCE AND EXHIBITION

Sponsored by the ACM SIGMM, SIGCHI,
SIGGRAPH, SIGBIT, SIGBIO, SIGCOMM, SIGIR, and SIGOIS

In cooperation with SIGAPP, SIGCAPH, SIGMOD, and SIGOPS

ADVANCE PROGRAM

Technical Program At a Glance

Tuesday November 7

7:00 am - 4:00 pm

Registration

8:45 am - 10:30 am

1. Conference Opening & Plenary

11:00 am - 12:30 pm

2A. Video Indexing and Retrieval

2B. Supporting Collaboration Environments

2P. The Information Superhighway: Electronic Democracy or Electronic Tranquilizer?

12:30 pm - 2:00 pm

Lunch Break

2:00 pm - 3:30 pm

3A. Cyber Communities

3B. Multimedia Storage Servers

3P. Curriculum, Education and Training about Multimedia

4:00 pm - 5:30 pm

4A. Authoring Flexible Documents

4B. Video Processing

4P. Multimedia on a Shoestring: Low Bandwidth Implementations

7:00 pm - 10:00 pm

Off-site conference reception, Yerba Buena Art Center

Wednesday November 8

7:00 am - 4:00 pm

Registration

9:00 am - 10:30 am

5A. Speech and Audio Interfaces

5D. Demonstrations: Networked Video

5P. Personal Narrative Spaces

11:00 am - 12:30 pm

- 6A. Multimedia Network Tools
- 6D. Demonstrations: Video-Centric Information Systems
- 6P. User Interface Challenges of Multimedia Design

12:30 pm - 2:00 pm

Lunch Break

2:00 pm - 3:30 pm

- 7A. Video and Image Collections
- 7D. Demonstrations:Enabling Hardware and Software
- 7P. Multimedia Museums and Cultural Learning

4:00 pm - 5:30 pm

- 8A. Multimedia Networking
- 8D. Demonstrations: Video Indexing
- 8P. Multimedia and Education: Magic, Myth or Miracle Cure?

7:00pm - 10:00 pm

Interactive Demonstrations

Thursday November 9

7:00 am - 4:00 pm

Registration

9:00 am - 10:30 am

- 9A. Video in Hypermedia
- 9B. Synchronization... it's about Time
- 9P. What's that Character Doing in Your Interface?

11:00 am - 12:30 pm

- 10A. Learning with MultiMedia
- 10B. Media Encoding
- 10P. Panel: Broadband Data Services to the Home

12:30 pm - 2:00 pm

Lunch Break

2:00 pm - 3:00 pm

11. Award Papers

3:30 pm - 5:15 pm

12. Plenary & Closing

TECHNICAL PROGRAM

Tuesday, November 7

8:45 am - 10:30 am

1. Opening Plenary
 - Silicon Snake Oil: What Multimedia is Offering
 - Speaker: Clifford Stoll

Clifford Stoll is the bestselling author of "The Cuckoo's Egg", the story of how he tracked and eventually caught a German spy ring operating over the Internet. Involved with computer networks since their inception, Cliff is widely known both online and off -- as astronomer, computer security expert, and network maven. Despite this, Cliff admits to being "deeply ambivalent" about the information highway.

11:00 am - 12:30 pm

2A. Video Indexing and Retrieval

Video parsing, retrieval and browsing: An integrated and content-based solution

H.J. Zhang, C.Y. Low, S.W. Smoliar and D. Zhong, National University of Singapore

An intuitive and efficient access interface to real-time incoming video based on automatic indexing

Yukinobu Taniguchi, Akihito Akutsu, Yoshinobu Tonomura and Hiroshi Hamada, NTT Human Interface Laboratories, Japan

Automatic content-based retrieval of broadcast news

M. G. Brown, J. T. Foote, G. J. F. Jones, K. Sparck Jones and S. J. Young, Olivetti Research Limited and Cambridge University, UK

2B. Supporting Collaboration Environments

Dealing with timing variability in the playback of interactive session recordings

Nelson R. Manohar and Atul Prakash, University of Michigan

Multimedia application sharing in a heterogeneous environment

Klaus H. Wolf, Konrad Froitzheim and Peter Schulthess, University of Ulm, Germany

Automating envisionment of virtual meeting room histories

Allen Ginsberg and Sid Ahuja, AT&T Bell Laboratories

2P. Panel: The Information Superhighway: Electronic Democracy or Electronic Tranquilizer?

Chair: Barbara Simons, IBM Almaden

Events are moving so rapidly with respect to the Information Superhighway or National Information Infrastructure (NII) that it's almost impossible to write an abstract dealing with policy issues several months in advance of an event. Laws are being proposed (as of this writing, the Exon Amendment has been incorporated into the Telecommunications Bill, but the final vote has not yet been taken), books are being written by authors with very diverse views such as Clifford Stoll and Nicholas Negroponte, large sums of money are being invested, and major pronouncements are being made. Yet the terms of the discussions tend to be vague. How does the Internet relate to this yet-to-be-defined NII? Who will have access and to what? How will it be used? What are the potential abuses and how will we be protected from them?

This panel will discuss current policy issues and concerns. We hope to have considerable input from the audience.

2:00 pm - 3:30 pm

3A. Cyber Communities

The Jupiter audio/video architecture: secure multimedia in network places

Pavel Curtis, Michael Dixon, Ron Frederick and David A. Nichols, Xerox PARC

Low disturbance audio for awareness and privacy in media space applications

Ian Smith and Scott E. Hudson, Georgia Institute of Technology

Visual Who: Animating the affinities and activities of an electronic community

Judith S. Donath, MIT Media Lab

3B. Multimedia Storage Servers

Disk farms vs. storage hierarchies for video service

Ann L. Chervenak, David A. Patterson and Randy H. Katz, Georgia Institute of Technology and University of California, Berkeley

Using rotational mirrored declustering for replica placement in a disk-array-based video server

Ming-Syan Chen, Hui-I Hsiao, Chung-Sheng Li and Philip S. Yu, IBM Thomas J. Watson Research Center

Efficient support for scan operations in video servers

Prashant J. Shenoy and Harrick M. Vin, University of Texas at Austin

3P. Panel: Curriculum, Education and Training about Multimedia

Chair: Ed Fox, Virginia Polytechnic Institute and State University

There is a growing demand for people with knowledge and skills in the areas of multimedia information, systems, and technology. Universities are just beginning to help in this regard, and a curriculum effort by SIGMM may be in order to provide guidance and support. This panel will lead a discussion with the audience regarding when and how to develop such a curriculum, dealing with issues such as:

At what level should courses be offered (senior, graduate, ...);

Should such courses be taught by CS, Arts, Communications, or other disciplines

--- or by interdisciplinary teams;

What are the needs of industry --- research, development --- that should be concentrated upon;

What courseware, toolkits, demonstrations, online resources, textbooks, projects, etc. can assist with education.

4:00 pm - 5:30 pm

4A. Authoring Flexible Documents

Multimedia documents with elastic time

Michelle Y. Kim and Junehwa Song, IBM T.J. Watson Research Center

Commands as media: design and implementation of a command stream

Jonathan L. Herlocker and Joseph A. Konstan, University of Minnesota

Control layer primitives for the layered multimedia data model

Michael J. Wynblatt and Gary Schloss, SUNY at Stony Brook

4B. Video Processing

A resolution independent video language

Jonathan Swartz and Brian C. Smith, Cornell University

A robust method for detecting cuts and dissolves in video sequences

Kevin Mai, Justin Miller and Ramin Zabih, Cornell University

Multiple perspective interactive video

Patrick H. Kelly, Arun Katkere, Don Y. Kuramura, Saied Moezzi, Shankar Chatterjee and Ramesh Jain, University of California, San Diego

4P. Panel: Multimedia on a Shoestring: Low Bandwidth Implementations

Chair: John Danskin, Dartmouth College

If Multimedia is to be accessible to the masses, it will have to work across slow networks like the standard telephone system. We are also seeing a tremendous increase in wireless (cellular modem) applications, especially for personal digital assistants. These machines present a tremendous new market for the multimedia community, but the network bandwidth problems associated with these machines are severe.

We will discuss problems, solutions and approaches associated with implementing multimedia applications over low bandwidth network connections such as cellular modems and phone lines.

6:30 pm - 9:00 pm

Off-site conference reception

Wednesday, November 8

9:00 am - 10:30 am

5A. Speech and Audio Interfaces

Surfing the Web by voice

Charles T. Hemphill and Philip R. Thrift, Texas Instruments

Hearing Aid: Adding verbal hints to a learning interface

Elizabeth Stoehr and Henry Lieberman, MIT Media Lab

Query by humming: Musical information retrieval in an audio database

Asif Ghias, Jonathan Logan, David Chamberlin and Brian C. Smith, Cornell University

5D. Demonstrations: Networked Video

MBONE VCR - A video conference recorder for the MBONE

Wieland Holfelder, ICSI

A distributed real-time MPEG audio video player

Shanwei Cen and Jonathan Walpole, Oregon Graduate Institute

5P. Personal Narrative Spaces

Chair: Sha Xin Wei, Stanford University

Emerging multimedia technologies have blurred the lines between classically distinct categories of theater and narrative: stage-spaces in which humans and artifacts interact, and spaces of symbols like a page of text or a digital video to be interpreted by an observer. This panel brings together practitioners to take stock of the state of the art and point out some exciting lines of work in the field of interactive media.

What will we face do when we freely inter-mix computational artifacts with human agents in our living, writing or performance spaces? How will we make sense of such hybrid spaces and how will we share these interpretations?

These questions are intimately tied with techno-scientific issues as well as literary and social issues. How should media models evolve to meet the needs of these personal narrative spaces? What are some design limitations of our tools or frameworks? What are some potential functions that inhabitants, browsers, composers, and architects can tap in emerging frameworks? What are some worthy challenges for researchers and developers interested in interactive multimedia?

11:00 am - 12:30 pm

6A. Multimedia Network Tools

Managing real-time services in multimedia networks using dynamic visualization and high-level controls

Mun Choon Chan, Giovanni Pacifici and Rolf Stadler, Columbia University

An application level video gateway

Elan Amir, Steven McCanne and Hui Zhang, University of California, Berkeley and Carnegie Mellon University

Multimedia traffic analysis using CHITRA95

Marc Abrams, Stephen Williams, Ghaleb Abdulla, Shashin Patel, Randy Ribler and Edward A. Fox, Virginia Polytechnic Institute and State University

6D. Demonstrations: Video-centric Information Systems

GUARDIAN: A knowledge-based home health-care system for children with leukemia
Michelle Y. Kim, IBM T.J. Watson Research Center

CITYQUILT: A navigable movie Tirtza Even

6P. User Interface Challenges of Multimedia Design

Chair: Penny Bauersfeld

Multimedia product and applications pose particularly difficult challenges for user interface (UI) designers. Not only must designers address the typical interface challenges of software or hardware products, they face a multitude of other issues introduced by each media type. Some typical UI considerations, such as functionality, structure navigation, and visual design may be increasingly complicated by powerful media content or control. In addition, media projects may be intended for audiences very different than standard personal computer users with varying expectations about interaction or functionality. Usability and design concerns are not easily addressed.

Interface designers new to multimedia applications often do not have the knowledge necessary to focus on media design. Similarly, multimedia developers who have little experience in designing user interface are challenged to make their products accessible and interactive. Multimedia UI design is, in fact, becoming its own discipline, where experts must know both the media world and user interface design.

2:00 pm - 3:30 pm

7A. Video and Image Collections

Integrated video archive tools

Rune Hjelsvold, Stein Langorgen, Roger Midtstraum and Olav Sandsta, Norwegian Institute of Technology, Norway

Automatic recognition of film genres

Stephan Fischer, Rainer Lienhart and Wolfgang Effelsberg, University of Mannheim, Germany

An integrated color-spatial approach to content-based image retrieval Wynne Hsu, T.S. Chua and H.K. Pung, National University of Singapore

7D. Demonstrations: Enabling Hardware and Software

Montage multipoint audio and video

S.R. Ahuja and R.D. Gaglianella, AT&T Bell Laboratories

The programmers' playground demo

T. Paul McCartney, Kenneth J. Goldman and Bala Swaminathan, Washington University

7P. Museums, Multimedia, and Cultural Learning

Co-Chairs: Ranjit Makkuni (Xerox PARC) and Mike Sipusik (UC Berkeley)

Museums provide people with a rich setting for cultural learning. Museums are the repositories of artifacts from diverse cultures. However, we should not forget that these artifacts are located in-situ a cultural practice, and need to be seen in their original cultural context where interrelations between form, process, myth, symbol, philosophy, ritual and celebration get articulated. Modern multimedia systems in museums have begun to address the issues of "re-contextualising" the cultural artifact in its original context. Members of the panel will show examples of cultural learning systems, and the design challenges of re-contextualisation.

Panelists consist of designers of learning systems, education researchers, museum administrators.

4:00 pm - 5:30 pm

8A. Multimedia Networking

Fast lossy Internet image transmission

Geoffrey M. Davis and John M. Danskin, Dartmouth College

A reliable dissemination protocol for interactive collaborative applications

Rajendra Yavatkar, James Griffioen and Madhu Sudan, University of Kentucky

A generalized admissions control strategy for heterogeneous, distributed multimedia systems

Saurav Chatterjee and Jay Strosnider, Carnegie Mellon University

8D. Demonstrations: Video Indexing

Automating the creation of a digital video library

Michael A. Smith and Michael Christel, Carnegie Mellon University

A video parsing, indexing, and retrieval system

H.J. Zhang, J.H. Wu, and C.Y. Low, National University of Singapore

8P. Panel: Multimedia and Education: Magic, Myth or Miracle Cure?

Chair: Rachelle Heller, George Washington University

The media has latched onto the use of multimedia in education. This panel will attempt to question the issues beyond the hype - is it an appropriate atmosphere in which to offer educational experiences or does it reinforce the 30 second sound byte mentality, what is it about multimedia that makes it a tool for all learners or is it a superficial educational environment? Is it just for kids or will all learners benefit from using multimedia? These and other questions will be addressed by this lively panel of theorists and practitioners.

7:00 pm - 10:00 pm

Interactive Demonstrations

The multimedia forum kiosk and Narli
Christopher M. Hoadley, Sherry Hsi, and Benjamin Berman, University of California at Berkeley

Collaborative multimedia in SHASTRA
Chandrajit Bajaj and S. Cutchin, Purdue University

Automatic recognition of film genres
Wolfgang Effelsberg, Stephan Fischer, and Rainer Lienhart, University of Mannheim

HEIDI-II: A testbed for interactive multimedia delivery and communication
Max Ott, G. Michelitsch, and J. Hearn, C&C Research Labs, NEC USA

An object-oriented model for the semantic interpretation of multimedia data
Rob Adams, James Griffioen, and Raj Yavatkar, University of Kentucky

Managing real-time services in multimedia networks using dynamic visualization and high-level controls
G. Pacifici, M.C. Chan, and Rolf Stadler, Columbia University

Thursday, November 9

9:00 am - 10:30 am

9A. Video in Hypermedia

ConText: Towards the evolving documentary
Glorianna Davenport and Michael Murtaugh, MIT Media Lab

Surfing the movie space: advanced navigation in movie-only hypermedia
Joerg Geissler, GMD-IPSI, Germany

Automated authoring of hypermedia documents of video programs
Behzad Shahraray and David C. Gibbon, AT&T Bell Laboratories

9B. Synchronization (it's about time....)

Scheduling MPEG-compressed video streams with firm deadline constraints
Ching-Chih Han and Kang G. Shin, University of Michigan

Low-level multimedia synchronization algorithms on broadband networks
Miguel Correia and Paulo Pinto, INESC and IST, Portugal

Coordinating heterogeneous time-based media between independent applications
Scott Flinn and Kellogg S. Booth, University of British Columbia, Canada

9P. What's that Character doing in your Interface?

Chair: Abbe Don, Abbe Don Interactive Inc.

Until recently, the discussion of the use of characters in the interface centered on the old question to anthropomorphize or not to anthropomorphize the interface. With the appearance of Microsoft's "social interface" in the form of Bob and his pals, with Fujitsu's use of avatars in their online service "Habitat," and with millions of people representing themselves daily in various contexts on the Internet, the old discussion centering on the wonders or pitfalls of anthropomorphism seems moot. Instead, many multimedia designers,

producers, and software engineers find themselves accepting the use of characters in the interface and are now grappling with a more difficult set of issues regarding implementation.

These questions include:

What is the most appropriate representation for a particular application or audience?

Why are some characters accepted while others are dismissed as "too cute?"

How do you match back-end functionality with the promises of the front-end representation?

What tools are needed to enable users to create their own characters or agents?

If a character acts autonomously, how do you explain the action to the user?

Can characters be truly adaptive to users' needs?

Can characters be truly adaptive within a story or entertainment context?

Can characters and 'bots be used effectively on the World Wide Web?

11:00 am - 12:30 pm

10A. Learning with MultiMedia

The PsyCLE Project: educational multimedia for conceptual understanding

Nick Hammond, Jean McKendree, Will Reader, Annie Trapp and Peter Scott, University of York and University of Sheffield, UK

pianoFORTE: A system for piano education beyond notation literacy

Stephen W. Smoliar, John A. Waterworth and Peter R. Kellock, National University of Singapore and Umea University, Sweden

eMMaC: Knowledge-based color critiquing support for novice multimedia authors

Kumiyo Nakakoji, Brent N. Reeves, Atsushi Aoki, Hironobu Suzuki and Kazunori Mizushima, MITI, Japan; Software Research Associates, Inc. and University of Colorado

10B. Media Encoding

Model-based motion estimation for synthetic animations

Maneesh Agrawala, Andrew C. Beers and Navin Chaddha, Stanford University

Inner-block operations on compressed images

Bo Shen and Ishwar K. Sethi, Wayne State University

Direct manipulation of MPEG compressed digital audio

M. Alexander Broadhead and Charles B. Owen, Dartmouth College

2:00 pm - 3:00 pm

10P. Broadband Data Services to the Home

Chair: Gita Gopal, HP Laboratories

The ubiquitous deployment of broadband access architectures to the home, coupled with an access-bandwidth technology discontinuity in the form of high-speed cable modems, will cause an explosion in broadband interactive data services to the home. The panel speakers will discuss services enabled by cable modems, the service software that is needed to provide these services, and the differences between this environment and other candidates for the NII including Video-On-Demand, and the Internet.

2:00 pm - 3:00 pm

11. Award Papers

Best Student Paper:

vic: A flexible framework for packet video

Steven McCanne and Van Jacobson, University of California, Berkeley

Best Paper:

A confederation of tools for capturing and accessing collaborative activity

Scott Minneman, Steve Harrison, Bill Janssen, Gordon Kurtenbach, Thomas Moran, Ian Smith and Bill van Melle, Xerox PARC, Alias and Georgia Institute of Technology

3:30 pm - 5:15 pm

12. Follow the Artists

Speaker: Carol Peters, daVinci Time & Space

High speed computing, multimedia capabilities, high speed networks, and authoring tools are the technical enablers of a new design language that will express new forms of entertainment, education, and information. This design language will allow visual, sound, and literary artists to speak through the new technology. To learn how to speak the language, the artists must start their lessons now. As partners to the artists, the technologists must learn how to listen to, follow, and create mechanisms for the artists. Thus will technologists discover how to specify and make accessible the new design language. Thus will the artists speak and invent. Technologists in service to artists will allow the new art forms to speak through the technology.

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MM'95 PROGRAM COMMITTEE

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David Tennenhouse, MIT
Laura Teodosio, BAM! Software
Michael Zyda, Naval Postgraduate School

Multimedia'95 Courses

Introduction from the Courses Chair

On behalf of this year's Course Selection Committee, I am pleased to be able to provide an outstanding selection of topical and informative courses for attendees of ACM MM '95. The Committee sought to provide a slate of courses to appeal to every conference attendee. This year's schedule of courses represents a broad range of topics that constitute most of the "elements" of multimedia.

In addition to the topics themselves, the courses in this year's schedule have been designed for a broad range of needs, - for those people interested in learning about new topics at an introductory level, to those needing advanced, state-of-the-art information within their own field of expertise. We have also tried to build the schedule to allow attendees to take an introductory course first, and a second or more advanced version afterwards. I urge everyone attending the conference to examine the course list carefully, and to get the most out of ACM Multimedia '95 by attending at least one course.

Sorel Reisman
Courses Chair

Courses At a Glance

FULL DAY COURSES

9:00 am - 5:30 pm

SA1 - Introduction To HYTIME

SA2 - Graphic Design For User Interfaces Of Multimedia And Online Products Or Services

HALF DAY MORNING COURSES

9:00 am - 12:30 pm

SA3 - Introduction To Multimedia Computing And Systems

SA4 - Systematic Design Of Multimedia Applications

SA6 - An Introduction To Broadcasting For The Multimedia Professional

12:30 pm - 2:00 pm

Lunch Break

HALF DAY AFTERNOON COURSES

2:00 pm - 5:30pm

SP1 - Understanding Distributed Multimedia Applications - The Architecture, Components, And End User Benefits

SP2 - Structural Issues In Multimedia Design

SP3 - How To Read And Evaluate A Multimedia Application

SP4 - Multimedia Technology In The Broadcasting Industry

SP5 - Cost Justification Issues in Multimedia Project Development

Monday

NOVEMBER 6

7:00 am -4:00 pm

Registration

FULL DAY COURSES

9:00 am - 5:30 pm

MA1 - Information Highway: A Construction Survey

MA2 - Desktop Animation

HALF DAY MORNING COURSES

9:00 - 12:30 pm

MA3 - Background For Digital Libraries: Information Retrieval And Hypertext

MA4 - Packet Video: Video Over IP And ATM Networks

MA5 - Real-Time Scheduling Technology For Continuous Multimedia Applications

MA6 - Designing University Courses In Interactive Multimedia

12:30 pm - 2:00 pm

Lunch Break

HALF DAY AFTERNOON COURSES

2:00 pm - 5:30 pm

MP1 - Writing Interactive Multimedia: Creative And Critical Strategies

MP2 - Research Issues and Design Issues for Digital Libraries

MP3 - Image And Video Compression Standards: Algorithms And Architectures

MP4 - Resource Management In Distributed Video Server Environments

MP5 - MHEG: An ISO Standard For Multimedia And Hypermedia Information Delivery

SUNDAY Full Day Courses

SA1: INTRODUCTION TO HYTIME

COURSE DURATION:: FULL day

COURSE LEVEL: BASIC

ABSTRACT

Hypermedia/Time-based Structuring Language (HyTime) is an ISO standard for hypermedia documentation. It is an extension of Standard Generalized Markup Language (SGML) that encodes the hypermedia structure of a document.

HyTime and SGML enable the use and development of hypermedia documents in an open and integrated environment. As such, authors are free to construct documents according to models that fit their particular needs. Although the resulting documents will follow many different models, they will use the same language for defining their underlying structure. Thus, each document will be readily integratable with documents of other models. Further, the structures shaping these documents can be defined in a manner that is independent of their eventual processing and presentation. This facilitates their application to many different, and possibly unanticipated, presentation situations.

ORGANIZER

Lloyd Rutledge received his B.S. degree from the University of Massachusetts at Amherst in 1987 and his Master of Science degree in Computer Science from the University of Massachusetts Lowell in 1993. He is currently at UMass Lowell researching his doctoral thesis on the processing of HyTime. He has also served on the HyTime development committee, published several articles on HyTime, and presented HyTime tutorials at several international conferences, including ACM Multimedia 94.

SA2: GRAPHIC DESIGN FOR USER INTERFACES OF MULTIMEDIA AND ONLINE PRODUCTS OR SERVICES

COURSE DURATION:: FULL day
COURSE LEVEL : I

ABSTRACT

This tutorial will provide proven concepts and techniques for effective, information-oriented design of user interfaces. Many visual examples, including detailed case studies, will provide concrete examples and practical guidelines for use of color, symbolism, layout, organization of content, metaphorical references, navigational strategies, and information visualization. The following items will be addressed: What is a user interface? Metaphors, Mental model, Navigation, Appearance, Interaction, Data visualization. Designing for multiple cultures, ages, genders, nationalities, User interface design process. Issues will be discussed in terms of the following Case studies: American Airlines SABRE Online Travel Information Network, DTIC: Golden Gate Online Tutorial for Database Searching, Oracle Online Mentor: CBT GUI Design Standards, Prodigy Corporate GUI Design Standards, and Random House New Media CD-ROM Titles

ORGANIZER

Aaron Marcus is a leading designer of user interfaces, multimedia, and online services. His career in computer graphics and graphic design spans 25 years, and his firm Aaron Marcus and Associates, Inc., in Emeryville, California, has helped design award-winning products for 13 years. Mr. Marcus has written or co-written four books, including *Graphic Design for Electronic Documents and User Interfaces,* and *The Cross-GUI Handbook.* He has presented tutorials around the world at major conferences and corporate sites since 1980.

SUNDAY MORNING Courses

SA3: INTRODUCTION TO MULTIMEDIA COMPUTING & SYSTEMS

COURSE DURATION:: HALF day
COURSE LEVEL: BASIC

ABSTRACT

There have been many new technical results in the development of large scale multimedia computing and communications systems. This course provides an introductory survey of both practice and research of multimedia computing and systems, including media and synchronization fundamentals, system architecture, middleware, OS support, continuous media file systems, GUI support, and network architectures. This course is recommended as a prerequisite to more advanced tutorials and the conference program. This course is an updated version of similar courses presented at ACM Multimedia 94, IEEE Multimedia Computing 94, and to other audiences.

ORGANIZER

Dr. John Buford is Assoc. Prof. of Computer Science at the University of Massachusetts Lowell. He is co-founder and director of the Distributed Multimedia Systems Lab, which has been active since 1990. He is contributing editor of the book Multimedia Systems, chair of X3L3.3 Hypermedia/Multimedia Information Coding, and US head of delegation to ISO MHEG. He has twenty five published papers, is on the editorial board for J. Multimedia Tools and Applications, and is a program committee member for various multimedia conferences.

SA4: SYSTEMATIC DESIGN OF MULTIMEDIA APPLICATIONS

COURSE DURATION:: HALF day
COURSE LEVEL: INTERMEDIATE

ABSTRACT

The course is intended for designers of multimedia applications and for users who need to develop their own applications. Designing a multimedia application requires a description of the nature of the "atomic pieces" of information; how the pieces are organized into "consumable" objects how the objects are interrelated; and how they can be grouped and accessed, to describe the application's behavior when the user will interact with it. This course will provide, a design methodology, a design model and a development environment correlated to the design methodology to accomplish these goals

The course will present and discuss the following topics:

- overall organization of a multimedia application and what design is about
- the structuring of multimedia applications: concepts and design primitives
- the dynamics of multimedia applications: concepts and design primitives
- modularization of multimedia applications
- how to reuse "pieces" of multimedia applications
- common errors in the design of multimedia applications
- the development cycle
- the development environment and tools

ORGANIZER

Paolo Paolini is Full Professor at University of Lecce (Italy) and Technical Director of the Hypermedia Laboratory at Politecnico di Milano. He has a Master and Ph.D. in Computer Science from the University of California at Los Angeles (UCLA). He has been active in data base modeling and systems, programming languages, distributed data bases, data bases views, hypermedia modeling and authoring, multimedia application development tools. He has been technical responsible of various European research projects in the above fields, five of them within the program ESPRIT. He served as General Chair of the ACM international conference on Hypertext and Hypermedia in 1992 (ECHT'92). He has been member of the Program Committee of various editions of VLDB'xx, ACM ECHT'xx, and ACM HT'xx conferences, and is currently Associated Editor of ACM Transactions on Information Systems (TOIS). LECTURER: Franca Garzotto - Hypermedia Laboratory - Politecnico Di Milano

SA5: IMAGE AND VIDEO DATABASES

COURSE DURATION:: HALF day
COURSE LEVEL: Intermediate

ABSTRACT

While earlier information systems were based on alphanumeric information, there is now an increasing tendency to include image, video, and other forms of data . The virtue of a database

system lies in its ability to efficiently retrieve the correct piece of information. Alphanumeric keys are used for organizing and retrieving appropriate piece of information in databases. What would happen if the basic data format is not alphanumeric but is an image, a video sequence, or some other signal?

This tutorial will be organized in the three sections- i) basic Issues, ii) review, and iii) detailed examples to address the following related issues. Images and other non-alphanumeric objects can neither be decomposed into well-defined records, nor can they be manipulated based upon any universally invariant criterion. By what principles can the images be organized? How are image-based queries specified? How can the concept of index keys be extended to image-based (as opposed to text-based) entities? These issues will be addressed for data that is in the form of video, speech or other sounds, or any other signal.

ORGANIZER

Ramesh Jain is a Professor of Electrical and Computer Engineering, and Computer Science and Engineering at University of California at San Diego. His research interests are in multimedia information systems, image databases, machine vision, and intelligent systems. He is the founding chairman of Virage, a San Diego based company developing systems for Visual Information Retrieval.

Ramesh is a Fellow of IEEE, AAI, and Society of Photo-Optical Instrumentation Engineers, and member of ACM, Pattern Recognition Society, Cognitive Science Society, Optical Society of America, and Society of Manufacturing Engineers. Currently, he is the Editor-in-Chief of IEEE Multimedia, and is on the editorial boards of several journals.

SA6: An Introduction to Broadcasting for the Multimedia Professional

COURSE DURATION:: Half Day

COURSE LEVEL: Basic

ABSTRACT

One of the largest markets for multimedia technology is the broadcasting industry. Understanding the broadcasting process is essential to meeting the broadcaster's needs. This tutorial will introduce the radio and television broadcasting process with an eye towards problem areas and multimedia solutions. We will follow various audio programs, including news, commercials, and music, from creation through selection, in and out of the studio, and from transmitter to receiver. We will illustrate the integration of people, equipment, and technologies that brings the radio program to your receiver. Then, we'll follow the production of television programs, both live and recorded, as they make their way through the broadcast chain. Finally, we'll explore the economics of broadcasting to better understand costs, savings, and income.

ORGANIZER

Charles Owen, In over a decade of experience in the broadcasting industry, has held positions varying from Chief Engineer of a radio group to Vice President of Clark and Associates, Ltd., a broadcast equipment manufacturer. He served as project leader for many large development projects in digital audio, digital video, and large facility automation. He is currently Administrator of the Dartmouth Experimental Visualization Laboratory, a Dartmouth Presidential Fellow, and a Ph.D. candidate in computer science where he is researching information retrieval in multimedia.

SUNDAY AFTERNOON Courses

SP1: UNDERSTANDING DISTRIBUTED MULTIMEDIA APPLICATIONS - THE ARCHITECTURE, COMPONENTS, & END USER BENEFITS

COURSE DURATION:: HALF day
COURSE LEVEL: BASIC

ABSTRACT

This course will address, explain, and analyze four major categories of multimedia applications: i) real-time multimedia (including videoconferencing , remote lectures , telemedicine ...), ii) on-line interactive multimedia (covering teleshopping, addressable advertisement, teletraining, movies-on-demand), iii) multimedia enabling of traditional IT systems (TP , DB , Office Systems), and iv) standalone multimedia (PCs /Mac with CD-drives and various titles). In each category, discussion will focus on the features, the architectural components, trends and issues related to such matters as server design, network and bandwidth requirements, protocols and standards such as MPEG MHEG HTML SGML PREMO HyTIME. Examples of systems running or pilots under implementation around the world will be given to illustrate the concepts. Finally, for each application, the course will address, from a user perspective, the expected benefits of multimedia and explore how multimedia can transform our day to lives.

ORGANIZER

N. Naffah has a Ph.D. in computer science from University of Paris and a telecom engineering degree from ENST . He has done research on computer networks and office automation at INRIA France . At Bull , he is Vice President for Multimedia business . N. Naffah is a member of the ACM , and IEEE .

SP2: STRUCTURAL ISSUES IN MULTIMEDIA DESIGN

COURSE DURATION:: 1/2 day COURSE LEVEL: BASIC

ABSTRACT

Designing end-user multimedia applications involves working with the structure of content: transforming content from linear to non-linear forms by creating interactive structures and designing representations of content. This course focuses on the structural issues involved in designing and developing a range of multimedia applications, from those with simple structures (branching, elaboration, and index) to those with complex structures (interactive narratives and essays), and on the kinds of content representations, or macrostructures, that work with different kinds of structures, content, and media.

ORGANIZER

Linn Marks is currently working on a digital library involving video-on-demand from a remote, large-scale server at IBM's T.J. Watson Research Center. She began her research in multimedia design at MIT's Project Athena in 1989. The focus of her work is the development of a framework for designing interactive discourse structures and new media interface elements, or multimedia macrostructures. She has presented tutorials on multimedia design at several conferences (see the World Wide Web Virtual SIGCHI Conference at <http://drucker.cgs.edu/chivas/>) and is co-editor of

the CHI '95 Electronic Proceedings.

SP3: HOW TO READ AND EVALUATE A MULTIMEDIA APPLICATION

COURSE DURATION:: HALF day
COURSE LEVEL: INTERMEDIATE

ABSTRACT

This course is intended for publishers, developers and "consumers" of multimedia applications, as well as for researchers interested in evaluation techniques of multimedia applications.

The course will present and discuss the following topics:

- general evaluation techniques, as they apply to multimedia applications
- what design-oriented evaluation is about
- concepts and terms for analyzing a multimedia application
- design-oriented evaluation criteria
- how to evaluate the main design features of an application:
- the procedural steps in evaluating a multimedia application

The course will mainly proceed through examples, therefore more than 10 multimedia applications will be examined. Applications will be either commercial CD-ROM's, or research prototypes, or WWW applications. Some of the applications will probably be well known to some of the attendees; the promise is to discover, through design-oriented evaluation, some (hopefully) unexpected findings about them.

ORGANIZER

Franca Garzotto is Research Associate at the Department of Electronics and Information, Politecnico di Milano, where she presently serves as Managing Director of the Hypermedia Laboratory. She has a Degree in Mathematics from the University of Padova (Italy) and a Ph.D. in Computer Science from Politecnico di Milano. She has been active in data base systems, conceptual modeling of documents, hypermedia modeling and authoring, multimedia evaluation. She has been involved in various ESPRIT research projects in the above fields. She has been tutorial chair of ECHT'90 and ECHT'92, and member of the program committee of the conferences ACM HT'91, ACM HT'93, ACM ECHT'92, ACM ECHT'94, ACM Multimedia '95, ICHIM'95, and ACM HT'96. She has been Program Chair of the International Workshop on Hypermedia Design held in Montpellier - France in June 1995, and is co-chair of the Workshop on "Evaluation Methods and Quality Criteria for Multimedia Applications" to be held in conjunction with ACM Multimedia '95

LECTURER: Paolo Paolini, University Lecce And Hypermedia Laboratory - Politecnico di Milano

SP4: Multimedia Technology in the Broadcasting Industry

COURSE DURATION:: Half Day
COURSE LEVEL: INTERMEDIATE

ABSTRACT

The broadcasting industry invented the terms "media" and "multimedia" and is applying new

multimedia technologies to air chains at a frantic pace. Advances such as program automation, non-linear editing, disk storage systems, and computer graphics have seen major commercial application in radio and television. This tutorial will detail the broadcasting process with emphasis on the technologies in use and proposed. We'll follow signals from production to reception, examining the elements of the chain, their use by operators and facility automation, and how they function as a system. The course will also examine new trends in broadcasting including cable television and radio, direct broadcast satellite, subcarrier data services, and bidirectional communications.

ORGANIZER

Charles Owen, in over a decade of experience in the broadcasting industry, has held positions varying from Chief Engineer of a radio group to Vice President of Clark and Associates, Ltd., a broadcast equipment manufacturer. He served as project leader for many large development projects in digital audio, digital video, and large facility automation. He is currently Administrator of the Dartmouth Experimental Visualization Laboratory, a Dartmouth Presidential Fellow, and a Ph.D. candidate in computer science where he is researching information retrieval in multimedia.

SP5: Cost Justification Issues in Multimedia Project Development

COURSE DURATION:: Half Day

COURSE LEVEL: INTERMEDIATE

ABSTRACT

Because of significant program development issues, multimedia development projects often require the same kind of cost justification that has historically been necessary for the efficient development of computer graphics-based applications. A manager of a multimedia development project must understand project related budget issues, including return-of-investment (ROI), in order to deliver truly successful systems. This tutorial will provide cost-justification models for such multimedia projects.

A description of the history of computer graphics application development since the mid 1960s will be presented as a comparative base for multimedia application development. Typical costing models, including ROI analyses, for the development of CAD/CAM, slide-making, engineering, and science visualization systems will be presented. Multimedia today has many characteristics similar to computer graphics of 20 years ago, but because of its relative immaturity as an industry and because of its broad application range it is still difficult to develop costing models for multimedia. Tutorial attendees will acquire an understanding of key cost-justification issues necessary to develop innovative multimedia applications.

ORGANIZER

Giorgio Valle is Professor of Computer Aided Design at Universita' di Milano, Italy. A computer graphics pioneer, he is currently working on Chiamabus Crema, an experimental, multimedia-based van-pooling system. Dr. Valle's interest is in the field of relational databases and his work on interactive cable television was instrumental in establishing the EUROGRAPHICS Association. For several terms he has served as Chairman of the ACM Italian Chapter.

MONDAY Full Day Courses

MA1: INFORMATION HIGHWAY: A CONSTRUCTION SURVEY

COURSE DURATION:: FULL day

COURSE LEVEL : Intermediate

ABSTRACT

This course is for anyone interested in understanding, using, or deploying exciting new broadband multimedia technology and services. Attendees will gain a thorough understanding of the end-to-end view and of the key elements of the "information highway" including: broadband services, interactive TV, and the Internet. The course covers system infrastructure, components, and tools. The emphasis is on system design issues and implications for clients, servers, and large-scale multimedia-enabled networks. Sample topics include: the WWW, interactive TV, video on demand, home banking, home automation, multimedia and compression, operating system support, application support, authoring tools, MM networks, training, education, information services, production of multimedia documents, multimedia tools, hypermedia systems, and regulation, copyrights, and security.

ORGANIZER

MILAN MILENKOVIC is a system architect in IBM's Interactive Broadband Services group within the Network Application Systems Division. Prior to joining IBM, he was in academia where he performed research and taught courses on operating systems, computer architecture, and distributed computing. Dr. Milenkovic's publications include papers, monograph, a college text "Operating Systems: Concepts and Design" (McGraw-Hill, 1992) and a co-edited tutorial "A Guided Tour of Multimedia Systems and Applications" (IEEE, 1995.)

MA2: DESKTOP ANIMATION

COURSE DURATION:: FULL day

COURSE LEVEL: BASIC

ABSTRACT

In this course attendees will learn the what, why and how of desktop animation. They will see what they can produce with the equipment they have. The tutorial will cover the full range of animation from the simple to the complex, but the emphasis will be on learning the basic skills and jargon necessary to get started in this exciting field. All concepts and terms are fully explained and in most cases, demonstrated by images and animations. The medium is part of the message. The course itself is a an effective demonstration of how to use animations in presentations. Over 40 animations and 5 video segments are embedded in this exciting and fast moving tutorial.

ORGANIZER

Darryl Freedman is president of VIVA Associates, a multimedia teaching and consulting firm. He has taught, consulted and lectured worldwide in telecommunications and multimedia for more than seven years. His seminars in the field of telecommunications and multimedia have been presented in the United States, Canada, Japan, Korea, the People's Republic of China and at major multimedia conferences. Darryl Freedman has a master's degree in electrical engineering from the Polytechnic University of New York. He is currently a regular contributor to The Carolina Computer News, on the advisory board for The School of Communications Arts, an instructor for computer animation at the Institute of Academic Technology and a member of the IEEE.

MONDAY MORNING Courses

MA3: BACKGROUND FOR DIGITAL LIBRARIES: INFORMATION RETRIEVAL AND HYPERTEXT

COURSE DURATION:: HALF day

COURSE LEVEL: basic

ABSTRACT

This course will provide an introduction to information retrieval (IR) and hypertext (HT), which will act as a background for the afternoon course Research Issues and Design Issues for Digital Libraries as well as work in: content-based retrieval, hypermedia, networked information, educational courseware, and related technologies. Topics that will be addressed include the problems, models, design issues, current systems and research interests in the fields of IR and HT. Course attendees will learn how to navigate and reuse the WWW-based courseware on IR and HT and Multimedia available from Virginia Tech as well as to appreciate the power of the KMS hypertext system. They will be able to ask and discuss questions with the current and past SIG chairs of SIGIR and SIGLINK, respectively, and to talk with them about techniques and implementation considerations regarding building IR and HT systems and information collections. They will learn where to find out more about concerns regarding human-computer interaction as well as algorithms.

ORGANIZER

Edward a. Fox is Professor of Computer Science and Associate Director for Research at the Computing Center, Virginia Tech. He has been PI on over 40 grants and now directs "Interactive Learning with a Digital Library in Computer Science." He has helped prepare one videotape documentary, three CD-ROMs, and over 100 book chapters or journal or conference papers. He is Chair of the ACM SIG on Information Retrieval and founder of the ACM Multimedia Conferences series.

LECTURER: Robert Akscyn, President of Knowledge Systems

MA4: Packet Video: Video over IP and ATM Networks

COURSE DURATION:: 1/2 day

COURSE LEVEL: Intermediate

ABSTRACT

The purpose of this course is to explain the principles of real-time video coding and transfer across ATM and IP networks. We will follow the video signal from the camera across the network to the monitor and step through all the functions needed along the way. Coding, application layer framing, rate-control, and resource allocation will be explained, as well as handling of loss, errors, and delay variations on the receiver side. Course topics will include; the use of real-time video in multimedia , applications, variable-rate and constant-rate coding, modeling and characterization of variable bit-rate , video sources, resource allocation, handling of jitter and loss, perceptual quality of service, and related research issues.

ORGANIZER

Gunnar Karlsson holds a MS from Chalmers University of Technology and a Ph.D. from Columbia University. His thesis was on video coding for packet-switched networks. Dr. Karlsson is a researcher at the Swedish Institute of Computer Science (SICS), and is on the faculty of the Royal Institute of Technology. Prior to joining SICS in 1992, he worked three years at the IBM Zurich Research Laboratory. He has been the first project leader of the Stockholm Gigabit Network.

MA5: REAL-TIME SCHEDULING TECHNOLOGY FOR CONTINUOUS MULTIMEDIA APPLICATIONS

COURSE DURATION:: HALF day
COURSE LEVEL: INTERMEDIATE

ABSTRACT

Real-time scheduling is critical for multimedia systems to meet the timing constraints of individual media streams, optimize system performance across concurrent streams as a whole, and support graceful performance degradation in case of resource contention. This course presents design principles and state-of-the-art techniques for scheduling system entities (thread, I/O processes, etc.) over system resources (CPU, disk I/O, etc.) for execution of continuous multimedia applications. The course is intended for researchers and practitioners who want to capture recent research results and new research challenges in this area, get insights into real-time scheduling fundamentals, and/or discuss system implementation techniques and existing obstacles in using off-the-shelf operating systems and hardware platforms. A multimedia data management system prototype will be used to demonstrate the effects of many of the real-time scheduling and real-time software methodologies presented in this course.

ORGANIZER

Dr. Jim Huang is a principal research scientist at Honeywell Technology Center and has recently been doing research and development on multimedia systems, real-time systems, real-time database systems, and multidatabase systems for industrial process control and military applications. He is an adjunct faculty of the University of Minnesota and the University of St. Thomas. He co-chaired the IEEE Real-Time Applications Workshop '94 and served on several program committees of real-time and multimedia systems conferences.

MA6: Designing University Courses in Interactive Multimedia

COURSE DURATION:: HALF DAY
COURSE LEVEL: INTERMEDIATE

ABSTRACT

ABSTRACT This course is a must for anyone who is thinking of incorporating multimedia into their curriculum or their business. Although this course will be Mac based, the concepts can be applied to any platform. Sample software and examples of student portfolios will be presented on the Mac. Examples of assignments and class handouts will be included. Based on a successful model of courses in interactive multimedia, this course is designed to address the questions: 1. Is there a corpus of material that can be identified and presented to students in an academic setting? 2. What requirements should be in place for students taking a first multimedia course? 3. How can that

corpus - if it exists - be ordered into a meaningful program? 4. What requirements should be in place for students pursuing such a program? 5. How does that material relate to, or augment, current undergraduate and graduate programs in computer science? 6. How can the team nature of "real world" interactive multimedia projects be accommodated in a computer science class to allow students of various backgrounds to participate? 7. What types of laboratory environments need to be created?

ORGANIZER

Dr. Kieffer is an assistant professor of computer science in the Computer Science Department, School of Mathematics, Science and Technology, at Eastern Washington University. Dr. Kieffer's research interests are in the area of computer literacy, educational uses of computers and interactive multimedia. She is a member of the Association for the Advancement of Computing in Education (ACE), Northwest Council for Computer Education (NCEE), IEEE and ACM, and the SIGs on Computer Science Education (SIGCSE) and Computer Uses in Education (SIGCUE).

LECTURER: Rachel Heller, Department of Electrical Engineering and Computer Science, The George Washington University, Washington DC 20052

MONDAY AFTERNOON COURSES

MP1: WRITING INTERACTIVE MULTIMEDIA: CREATIVE AND CRITICAL STRATEGIES

COURSE DURATION:: 1/2 day COURSE LEVEL: BASIC

ABSTRACT

In this tutorial, participants will help formulate some basic principles for writing for the interactive, multimedia environment. This course will 1) attempt to describe interactive multimedia as a medium similar to and yet distinct from film, television, or print; 2) explain roles and challenges for the writer; and 3) introduce creative and critical ways to approach the medium through examples and group exercises. The course is geared to those with previous writing experience who are new to multimedia and those with multimedia experience who have little formal training in writing.

ORGANIZER

Martin Schecter taught composition, creative writing, and cultural studies as an assistant professor of English at Drake University from 1992 - 1994. Previously, he worked as a senior medical writer in Princeton, NJ. He has his M.F.A. in fiction writing from the University of Arizona and has published short fiction, essays, criticism and a novel. He currently manages an educational CD-ROM project and is at work on a textbook on fiction writing.

MP2: Research Issues and Design Issues for Digital Libraries

COURSE DURATION:: HALF day

COURSE LEVEL: Intermediate

ABSTRACT

This course will focus on the popular emerging field of Digital Libraries (DLs) and for people new to this field will be based upon issues presented in the preparatory morning course, "Background for Digital Libraries: Information Retrieval and Hypertext." Those who are at an intermediate level, should have some background in information retrieval, hypertext, hypermedia, or library or information science. Attendees at an advanced level will be interested in the perspective of the co-ORGANIZERS, who led editing of the April 1995 CACM issue on DLs.

Attendees will learn about a number of important DL projects, and be prepared to help design and implement future DLs. They should understand the main research issues regarding DLs, and know where to obtain guidance on the key technologies involved. They will learn about the results of May, October and November 1995 workshops about DLs, as well as others dating back to 1991. They will see demonstrations regarding ACM's digital library and learn about progress in scaling up the KMS system to support very large DLs.

ORGANIZER

Edward a. Fox is Professor of Computer Science and Associate Director for Research at the Computing Center, Virginia Tech. He has been PI on over 40 grants and now directs "Interactive Learning with a Digital Library in Computer Science." He has helped prepare one videotape documentary, three CD-ROMs, and over 100 book chapters or journal or conference papers. He is Chair of the ACM SIG on Information Retrieval and founder of the ACM Multimedia Conferences series.

LECTURER: Robert Akscyn, President of Knowledge Systems

MP3: IMAGE & VIDEO COMPRESSION STANDARDS: ALGORITHMS & ARCHITECTURES

COURSE DURATION:: half day

COURSE LEVEL: BASIC

ABSTRACT

Compression is one of the core technologies in video teleconferencing, digital television, and a number of multimedia applications. This tutorial provides an introductory overview of the principles of image and video compression standards and their hardware implementation. The tutorial will be in two parts. The first part reviews the key principles in image compression and acquaints the audience with transform coding, motion estimation and compensation, and entropy coding. In this part, an overview of the JPEG, MPEG and H.261 image and video compression standards will be presented. A short overview of the MPEG audio and Dolby AC-3 algorithms will also be presented. The second part of the tutorial presents an overview of the latest hardware implementations in custom and programmable video processors.

ORGANIZER

Konstantinos Konstantinides received his Ph.D. degree in electrical engineering from the University of California, Los Angeles, in 1985. He is currently a member of the technical staff at Hewlett-Packard Laboratories, in Palo Alto where he is involved in various research projects in digital signal and image processing and compression. He is a Senior member of the IEEE and a member of the IEEE Technical Committee on the design and implementation of digital signal processors.

LECTURER: Vasudev Bhaskaran, Hewlett-Packard Laboratories, MS 3U, PO Box 10490, Palo

Alto, CA 94303

MP4: RESOURCE MANAGEMENT IN DISTRIBUTED VIDEO SERVER ENVIRONMENTS

COURSE DURATION:: 1/2 day COURSE LEVEL: INTERMEDIATE

ABSTRACT

This tutorial, which is for both practitioners and researchers, provides an overview of resource management in a distributed video server cluster consisting of many interconnected processing and storage nodes. The goal is to provide casual participants with an overview of video server design issues as well as to provide sophisticated designers with new and timely information about this rapidly evolving area. Practitioners will learn practical and new algorithms and design principles. Researchers will additionally benefit from a broad overview of this area. Case studies will be presented that will be of interest both groups. An extensive bibliography of recent work will also be provided.

ORGANIZER:

Dr. Asit Dan is a Research Staff Member at the IBM Watson Research Center working on the design and development of distributed video server architectures. He has authored several papers and holds many patents in this area. His earlier work on database received an ACM Dissertation award and is published by the MIT Press.

LECTURER: Dr. Dinkar Sitaram, IBM Research Division, H4-A04, PO Box 704, Yorktown Heights, NY 10598

MP5: MHEG: AN ISO STANDARD FOR MULTIMEDIA AND HYPERMEDIA INFORMATION DELIVERY

COURSE DURATION:: HALF day
COURSE LEVEL: ADVANCED

ABSTRACT

MHEG is ISO 13522, a specification for platform-independent delivery of interactive multimedia and hyper-media content in networked environments. MHEG is near standardization, and has close ties with the MPEG-2 Transport Stream and MPEG-2 DSM-CC which are expected to be widely used in set-top box and other consumer entertainment devices. MHEG also includes a platform-independent specification for scriptware application delivery. This tutorial provides an in-depth discussion of MHEG part 1 (object interchange) and part 3 (scriptware interchange). We also present details of implementation issues for MHEG engines, and recommendations for supporting MHEG in authoring environments.

ORGANIZER

Dr. John Buford is Assoc. Prof. of Computer Science at the University of Massachusetts Lowell. He is co-founder and director the Distributed Multimedia Systems Lab, which has been active since 1990. He is contributing editor of the book Multimedia Systems, chair of X3L3.3 Hypermedia/Multimedia Information Coding, and US head of delegation to ISO MHEG. He has 25 published papers, is on the editorial board for J. Multimedia Tools and Applications, and is a

program committee member for various multimedia conferences.

Hotel Reservations

The host hotel for Multimedia '95 is:

The Hyatt Regency San Francisco
5 Embarcadero Center
San Francisco, CA 94111
415-398-2567 (fax)
415-788-1234 (phone)
800-233-1234 (phone)

The Hyatt Regency San Francisco rates:

Single: \$147.00
Double/Twin: \$167.00
Business Plan Single: \$162.00
Business Plan Double: \$182.00
Triple Rooms: \$187.00
Quad Rooms: \$207.00

You must mention MultiMedia to receive the special conference rate. It is recommended that you make your reservations before October 8, 1995.

Guests of the Hyatt Regency San Francisco, have use of the in-hotel fitness center with aerobic equipment, as well as a waterfront path for walking and jogging .

Airport Transportation

The Hyatt Regency is about 20 minutes from the airport. Taxi service costs approximately \$30.00. SFO Airporter shuttles leave the airport every 10-20 minutes with service to the Hyatt at a cost of \$8.00 one way; \$14 round trip. For further information on the SFO Airporter, call 1-415-495-8404.

San Francisco

Whether you visit Fisherman's Wharf, Chinatown, the Wine Country, or Alcatraz or whether you ride over the Golden Gate Bridge or the cable cars of the hilly streets of San Francisco, this jewel of a city inspires instant recognition around the world.

San Francisco's diversity is most evident in its neighborhoods. You will find that apart from the city's restaurants, shops, theaters, art galleries and museums, this city holds the key to a unique visitor experience.

[Go back to Multimedia'95 home page](#)

ACM Multimedia'95 Hotel Page / Hui Zhang / hzhang@cs.cmu.edu

REGISTRATION FORM

MULTIMEDIA'95
 [November 5-9, 1995]

Please type or print clearly. Photocopy additional forms if necessary.

Full Name

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(You must fill in your member number to qualify for member rates.)

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Only	\$385	\$455	\$485	\$555	\$125	\$195	\$

(Does not include courses. Your conference registration includes print proceedings, admission to all conference sessions and demonstrations, exhibits and evening function on Tuesday.)

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One half-day course	\$240	\$265	\$285	\$310		\$

Multiple half-day courses	\$185	\$205	\$220	\$240		

Number of half-day courses x Price = \$
 ----- ----- -----

Exhibits Only \$25 (complimentary when signing up for the conference) \$

CD-ROM \$30

\$

TOTAL AMOUNT ENCLOSED

\$

Payment Options

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CANCELLATION POLICY: Confirmed registrants who cannot attend are entitled to a refund of paid fees less a \$50 processing fee if a written request is received by us on or before October 8. After October 8, there are no refunds. Substitutions are welcome. For more information, call +1-800-524-1851 (in USA and Canada only) or 508-443-3330.

COURSE SELECTIONS

(please check the courses you plan to attend)

Full-Day Courses

(SUNDAY)

SA1 Introduction to HyTime

SA2 Graphic Design for User Interfaces of Multimedia and Online Products or Services

(MONDAY)

MA1 Information Highway: A construction Survey

MA2 Desktop Animation

Half-Day Courses

(SUNDAY AM)

SA3 Introduction to Multimedia Computing and Systems

SA4 Systematic Design of Multimedia Applications

SA5 Image and Video Databases

SA6 An introduction to Broadcasting for the Multimedia Professionals

(SUNDAY PM)

SP1 Understanding Distributed Multimedia Applications

SP2 Structural Issues in Multimedia Design

SP3 How to Read and Evaluate a Multimedia Application

SP4 Multimedia Technology in the Broadcasting Industry

- SP5 Cost justification Issues in Multimedia Project Development
(MONDAY AM)
- MA3 Background for Digital Libraries
- MA4 Packet Video: Video over IP and ATM Networks
- MA5 Real-Time Scheduling Technology for Continuous Multimedia Applications
- MA6 Designing University Courses in Interactive Multimedia
(MONDAY PM)
- MP1 Writing Interactive Multimedia: Creative and Critical Strategies
- MP2 Background for Digital Libraries
- MP3 Image and Video Compression Standards
- MP4 Resource Management in Distributed Video Server Environments
- MP5 MHEG: An ISO Standard for Multimedia and Hypermedia Information Delivery

Conference Sessions: Please list the code number of the conference session you plan to attend in each time slot. This information is used for room planning purposes only and is non-binding.

Tuesday -----11:00 AM ----- 2:00 PM ----- 4:00 PM

Wednesday ----- 9:00 AM -----11:00 AM ----- 2:00 PM -----4:00 PM

Thursday ----- 9:00 AM -----11:00 AM

Do you have any special needs? (please specify)

Multimedia'95 Advance Program

Program At a Glance

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Tuesday November 7

7:00 am - 4:00 pm

Registration

8:45 am - 10:30 am

1. Conference Opening & Plenary

11:00 am - 12:30 pm

2A. Video Indexing and Retrieval

2B. Supporting Collaboration Environments

2P. Policy Issues in the Development of Digital Media

12:30 pm - 2:00 pm

Lunch Break

2:00 pm - 3:30 pm

3A. Cyber Communities

3B. Multimedia Storage Servers

3P. Curriculum, Education and Training about Multimedia

4:00 pm - 5:30 pm

4A. Authoring Flexible Documents

4B. Video Processing

4P. Multimedia on a Shoestring: Low Bandwidth Implementations

7:00 pm - 10:00 pm

Off-site conference reception, Yerba Buena Art Center

Wednesday November 8

7:00 am - 4:00 pm

Registration

9:00 am - 10:30 am

5A. Speech and Audio Interfaces

5D. Demonstrations: Networked Video

5P. Personal Narrative Spaces

11:00 am - 12:30 pm

6A. Multimedia Network Tools

6D. Demonstrations: Video-Centric Information Systems

6P. User Interface Challenges of Multimedia Design

12:30 pm - 2:00 pm

Lunch Break

2:00 pm - 3:30 pm

7A. Video and Image Collections

7D. Demonstrations: Enabling Hardware and Software

7P. Multimedia Museums and Cultural Learning

4:00 pm - 5:30 pm

8A. Multimedia Networking

8D. Demonstrations: Video Indexing

8P. Multimedia and Education: Magic, Myth or Miracle Cure?

7:00pm - 10:00 pm

Interactive Demonstrations

Thursday November 9

7:00 am - 4:00 pm

Registration

9:00 am - 10:30 am

9A. Video in Hypermedia

9B. Synchronization... it's about Time

9P. What's that Character Doing in your Interface?

11:00 am - 12:30 pm

10A. LEARNing with MultiMedia

10B. Media Encoding

10P. Panel: Broadband Data Services to the Home

12:30 pm - 2:00 pm

Lunch Break

2:00 pm - 3:00 pm

11. Award Papers

3:30 pm - 5:15 pm

12. Plenary & Closing

TECHNICAL PROGRAM

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Tuesday, November 7

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8:45 am - 10:30 am

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1. Opening Plenary

Silicon Snake Oil: What Multimedia is Offering

Speaker: Clifford Stoll

Clifford Stoll is the bestselling author of "The Cuckoo's Egg", the story of how he tracked and eventually caught a German spy ring operating over the Internet. Involved with computer networks since their inception, Cliff is widely known both online and off -- as astronomer, computer security expert, and network maven. Despite this, Cliff admits to being "deeply ambivalent" about the information highway.

11:00 am - 12:30 pm

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2A. Video Indexing and Retrieval

Video parsing, retrieval and browsing: An integrated and content-based solution

H.J. Zhang, C.Y. Low, S.W. Smoliar and D. Zhong, National University of Singapore

An intuitive and efficient access interface to real-time incoming video based on automatic indexing

Yukinobu Taniguchi, Akihito Akutsu, Yoshinobu Tonomura and Hiroshi Hamada, NTT Human Interface Laboratories, Japan

Automatic content-based retrieval of broadcast news

M. G. Brown, Olivetti Research Limited, UK

J. T. Foote, G. J. F. Jones, K. Sparck Jones and S. J. Young, Cambridge University, UK

2B. Supporting Collaboration Environments

Dealing with timing synchronization and variability in the playback of interactive session recordings

Nelson R. Manohar and Atul Prakash, University of Michigan

Multimedia application sharing in a heterogeneous environment

Klaus H. Wolf, Konrad Froitzheim and Peter Schulthess, University of Ulm, Germany

Automating envisionment of virtual meeting room histories

Allen Ginsberg and Sid Ahuja, AT&T Bell Laboratories

2P. Panel: Policy Issues in the Development of Digital Media

Chair: Barbara Simons, IBM Almaden

Events are moving so rapidly with respect to the Information Superhighway or National Information Infrastructure (NII) that it's almost impossible to write an abstract dealing with policy issues several months in advance of an event. Laws are being proposed (as of this writing, the Exon Amendment has been incorporated into the Telecommunications Bill, but the final vote has not yet been taken), books are being written by authors with very diverse views such as Clifford Stoll and Nicholas Negroponte, large sums of money are being invested, and major pronouncements are being made. Yet the terms of the discussions tend to be vague. How does the Internet relate to this yet-to-be-defined NII? Who will have access and to what? How will it be used? What are the potential abuses and how will we be protected from them?

This panel will discuss current policy issues and concerns. We hope to have considerable input from the audience.

2:00 pm - 3:30 pm

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3A. Cyber Communities

The Jupiter audio/video architecture: secure multimedia in network places

Pavel Curtis, Michael Dixon, Ron Frederick and David A. Nichols, Xerox PARC

Low disturbance audio for awareness and privacy in media space applications

Ian Smith and Scott E. Hudson, Georgia Institute of Technology

Visual Who: Animating the affinities and activities of an electronic community

Judith S. Donath, MIT Media Lab

3B. Multimedia Storage Servers

Choosing the best storage system for video service

Ann L. Chervenak, Georgia Institute of Technology

David A. Patterson and Randy H. Katz, University of California, Berkeley

Using rotational mirrored declustering for replica placement in a disk-array-based video server

Ming-Syan Chen, Hui-I Hsiao, Chung-Sheng Li and Philip S. Yu, IBM Thomas J. Watson Research Center

Efficient support for scan operations in video servers

Prashant J. Shenoy and Harrick M. Vin, University of Texas at Austin

3P. Panel: Curriculum, Education and Training about Multimedia

Chair: Ed Fox, Virginia Polytechnic Institute and State University

There is a growing demand for people with knowledge and skills in the areas of multimedia information, systems, and technology. Universities are just beginning to help in this regard, and a curriculum effort by SIGMM may be in order to provide guidance and support. This panel will lead a discussion with the audience regarding when and how to develop such a curriculum, dealing with issues such as:

- o At what level should courses be offered (senior, graduate, ...);
- o Should such courses be taught by CS, Arts, Communications, or other disciplines --- or by interdisciplinary teams;
- o What are the needs of industry --- research, development --- that should be concentrated upon;
- o What courseware, toolkits, demonstrations, online resources, textbooks, projects, etc. can assist with education.

4:00 pm - 5:30 pm

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4A. Authoring Flexible Documents

Multimedia documents with elastic time

Michelle Y. Kim and Junehwa Song, IBM T.J. Watson Research Center

Commands as media: design and implementation of a command stream

Jonathan L. Herlocker and Joseph A. Konstan, University of Minnesota

Control layer primitives for the layered multimedia data model

Michael J. Wynblatt and Gary Schloss, SUNY at Stony Brook

4B. Video Processing

A resolution independent video language

Jonathan Swartz and Brian C. Smith, Cornell University

A feature-based algorithm for detecting and classifying scene breaks

Kevin Mai, Justin Miller and Ramin Zabih, Cornell University

An architecture for multiple perspective interactive video

Patrick H. Kelly, Arun Katkere, Don Y. Kuramura, Saied Moezzi, Shankar Chatterjee and Ramesh Jain, University of California, San Diego

4P. Panel: Multimedia on a Shoestring: Low Bandwidth Implementations

Chair: John Danskin, Dartmouth College

If Multimedia is to be accessible to the masses, it will have to work across slow networks like the standard telephone system. We are also seeing a tremendous increase in wireless (cellular modem) applications, especially for personal digital assistants. These machines present a tremendous new market for the multimedia community, but the network bandwidth problems associated with these machines are severe.

We will discuss problems, solutions and approaches associated with implementing multimedia applications over low bandwidth network connections such as cellular modems and phone lines.

6:30 pm - 9:00 pm

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Off-site conference reception, Yerba Buena Gardens

Wednesday, November 8

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9:00 am - 10:30 am

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5A. Speech and Audio Interfaces

Surfing the Web by voice

Charles T. Hemphill and Philip R. Thrift, Texas Instruments

Hearing Aid: Adding verbal hints to a learning interface

Elizabeth Stoehr and Henry Lieberman, MIT Media Lab

Query by humming: Musical information retrieval in an audio database

Asif Ghias, Jonathan Logan, David Chamberlin and Brian C. Smith, Cornell University

5D. Demonstrations: Networked Video

MBone VCR - A video conference recorder for the MBone

Wieland Holfelder, ICSI

A distributed real-time MPEG audio video player

Shanwei Cen, C. Pu, R. Staehli, C. Cowan and Jonathan Walpole, Oregon Graduate Institute

5P. Personal Narrative Spaces

Chair: Sha Xin Wei, Stanford University

Emerging multimedia technologies have blurred the lines between classically distinct categories of theater and narrative: stage-spaces in which humans and artifacts interact, and spaces of symbols like a page of text or a digital video to be interpreted by an observer. This panel brings together practitioners to take stock of the state of the art and point out some exciting lines of work in the field of interactive media.

What will we face do when we freely inter-mix computational artifacts with human agents in our living, writing or performance spaces? How will we make sense of such hybrid spaces and how will we share these interpretations?

These questions are intimately tied with techno-scientific issues as well as literary and social issues. How should media models evolve to meet the needs of these personal narrative spaces? What are some design limitations of our tools or frameworks? What are some potential functions that inhabitants, browsers, composers, and architects can tap in emerging frameworks? What are some worthy challenges for researchers and developers interested in interactive multimedia?

11:00 am - 12:30 pm

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6A. Multimedia Network Tools

Managing real-time services in multimedia networks using dynamic visualization and high-level controls

Mun Choon Chan, Giovanni Pacifici and Rolf Stadler, Columbia University

An application level video gateway

Elan Amir, Steven McCanne, University of California, Berkeley

Hui Zhang, Carnegie Mellon University

Multimedia traffic analysis using CHITRA95

Marc Abrams, Stephen Williams, Ghaleb Abdulla, Shashin Patel, Randy Ribler and Edward

A. Fox, Virginia Polytechnic Institute and State University

6D. Demonstrations: Video-centric Information Systems

GUARDIAN: A knowledge-based home health-care system for children with leukemia

Michelle Y. Kim, IBM T.J. Watson Research Center

CITYQUILT: A navigable movie Tirtza Even

6P. User Interface Challenges of Media Design

Chair: Penny Bauersfeld

Multimedia product and applications pose particularly difficult challenges for user interface (UI) designers. Not only must designers address the typical interface challenges of software or hardware products, they face a multitude of other issues introduced by each media type. Some typical UI considerations, such as functionality, structure navigation, and visual design may be increasingly complicated by powerful media content or control. In addition, media projects may be intended for audiences very different than standard personal computer users with varying expectations about interaction or functionality. Usability and design concerns are not easily addressed.

Interface designers new to multimedia applications often do not have the knowledge necessary to focus on media design. Similarly, multimedia developers who have little experience in designing user interface are challenged to make their products accessible and interactive. Multimedia UI design is, in fact, becoming its own discipline, where experts must know both the media world and user interface design.

2:00 pm - 3:30 pm

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7A. Video and Image Collections

Integrated video archive tools

Rune Hjelsvold, Stein Langorgen, Roger Midtstraum and Olav Sandsta, Norwegian Institute of Technology, Norway

Automatic recognition of film genres

Stephan Fischer, Rainer Lienhart and Wolfgang Effelsberg, University of Mannheim, Germany

An integrated color-spatial approach to content-based image retrieval Wynne Hsu, T.S. Chua and H.K. Pung, National University of Singapore

7D. Demonstrations: Enabling Hardware and Software

Montage: Multipoint audio and video for PCI-based PC's

S.R. Ahuja and R.D. Gaglianella, AT&T Bell Laboratories

The programmers' playground demo

Kenneth J. Goldman, T. Paul McCartney, R. Sethuraman and Bala Swaminathan, Washington University

7P. Museums, Multimedia, and Cultural Learning

Co-Chairs: Ranjit Makkuni, Xerox PARC and Mike Sipusic, University of California, Berkeley

Museums provide people with a rich setting for cultural learning. Museums are the repositories of artifacts from diverse cultures. However, we should not forget that these artifacts are located in-situ a cultural practice, and need to be seen in their original cultural context where interrelations between form, process, myth, symbol, philosophy, ritual and celebration get articulated. Modern multimedia systems in museums have begun to address the issues of "re-contextualising" the cultural artifact in its original context. Members of the panel will show examples of cultural learning systems, and the design challenges of re-contextualisation.

Panelists consist of designers of learning systems, education researchers, museum administrators.

4:00 pm - 5:30 pm

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8A. Multimedia Networking

Fast lossy Internet image transmission

John M. Danskin, Geoffrey M. Davis and X. Song, Dartmouth College

A reliable dissemination protocol for interactive collaborative applications

Rajendra Yavatkar, James Griffioen and Madhu Sudan, University of Kentucky

A generalized admissions control strategy for heterogeneous, distributed multimedia systems

Saurav Chatterjee and Jay Strosnider, Carnegie Mellon University

8D. Demonstrations: Video Indexing

Automating the creation of a digital video library

Michael A. Smith and Michael Christel, Carnegie Mellon University

A video parsing, indexing, and retrieval system

H.J. Zhang, J.H. Wu, C.Y. Low and S.W. Smoliar, National University of Singapore

8P. Panel: Multimedia and Education: Magic, Myth or Miracle Cure?

Chair: Rachelle Heller, George Washington University

The media has latched onto the use of multimedia in education. This panel will attempt to question the issues beyond the hype - is it an appropriate atmosphere in which to offer educational experiences or does it reinforce the 30 second sound byte mentality, what is it about multimedia that makes it a tool for all learners or is it a superficial educational environment? Is it just for kids or will all learners benefit from using multimedia? These and other questions will be addressed by this lively panel of theorists and practitioners.

7:00 pm - 10:00 pm

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Interactive Demonstrations

The multimedia forum kiosk and speakeasy

Christopher M. Hoadley, Sherry Hsi, and Benjamin Berman, University of California, Berkeley

Collaborative multimedia in SHASTRA
Chandrajit Bajaj and S. Cutchin, Purdue University

Automatic recognition of film genres
Wolfgang Effelsberg, Stephan Fischer, and Rainer Lienhart, University of Mannheim

HEIDI-II: A testbed for interactive multimedia delivery and communication
Max Ott, G. Michelitsch, J. Hearn, D. Reininger and V. Bansal, C&C Research Labs, NEC USA

An object-oriented model for the semantic interpretation of multimedia data
Rob Adams, James Griffioen, and Raj Yavatkar, University of Kentucky

Real-time emulation and visualization of large multimedia networks
G. Pacifici, M.C. Chan, and Rolf Stadler, Columbia University

Surfing the Web by voice
Charles T. Hemphill and Philip R. Thrift, Texas Instruments

ConText: An associative media browser
Glorianna Davenport and Michael Murtaugh, MIT Media Lab

Visual Who: a demonstration
Judith S. Donath, MIT Media Lab

Thursday, November 9
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9:00 am - 10:30 am
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9A. Video in Hypermedia

ConText: Towards the evolving documentary
Glorianna Davenport and Michael Murtaugh, MIT Media Lab

Surfing the movie space: advanced navigation in movie-only hypermedia
Joerg Geissler, GMD-IPSI, Germany

Automated authoring of hypermedia documents of video programs
Behzad Shahraray and David C. Gibbon, AT&T Bell Laboratories

9B. Synchronization...it's about Time

Scheduling MPEG-compressed video streams with firm deadline constraints
Ching-Chih Han and Kang G. Shin, University of Michigan

Low-level multimedia synchronization algorithms on broadband networks
Miguel Correia, INESC and IST, Portugal; Paulo Pinto, IST, Portugal

Coordinating heterogeneous time-based media between independent applications
Scott Flinn, University of British Columbia, Canada

9P. What's that Character doing in your Interface?

Chair: Abbe Don, Abbe Don Interactive Inc.

Until recently, the discussion of the use of characters in the interface centered on the old question to anthropomorphize or not to anthropomorphize the interface. With the appearance of Microsoft's "social interface" in the form of Bob and his pals, with Fujitsu's use of avatars in their online service "Habitat," and with millions of people representing themselves daily in various contexts on the Internet, the old discussion centering on the wonders or pitfalls of anthropomorphism seems moot. Instead, many multimedia designers, producers, and software engineers find themselves accepting the use of characters in the interface and are now grappling with a more difficult set of issues regarding implementation. These questions include:

- o What is the most appropriate representation for a particular application or audience?
- o Why are some characters accepted while others are dismissed as "too cute?"
- o How do you match back-end functionality with the promises of the front-endrepresentation?
- o What tools are needed to enable users to create their own characters or agents?
- o If a character acts autonomously, how do you explain the action to the user?
- o Can characters be truly adaptive to users' needs?
- o Can characters be truly adaptive within a story or entertainment context?
- o Can characters and 'bots be used effectively on the World Wide Web?

11:00 am - 12:30 pm

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10A. LEARNing with MultiMedia

The PsyCLE Project: educational multimedia for conceptual understanding

Nick Hammond, Jean McKendree, Will Reader and Annie Trapp, University of York, UK
Peter Scott, University of Sheffield, UK

pianoFORTE: A system for piano education beyond notation literacy

Stephen W. Smoliar and Peter R. Kellock, National University of Singapore
John A. Waterworth, Umea University, Sweden

eMMaC: Knowledge-based color critiquing support for novice multimedia authors

Kumiyo Nakakoji, Brent N. Reeves, Atsushi Aoki, Hironobu Suzuki and Kazunori Mizushima, University of Colorado; Software Research Associates, Inc. and MITI, Japan

10B. Media Encoding

Model-based motion estimation for synthetic animations

Maneesh Agrawala, Andrew C. Beers and Navin Chaddha, Stanford University

Inner-block operations on compressed images

Bo Shen and Ishwar K. Sethi, Wayne State University

Direct manipulation of MPEG compressed digital audio

M. Alexander Broadhead and Charles B. Owen, Dartmouth College

2:00 pm - 3:00 pm

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10P. Broadband Data Services to the Home

Chair: Gita Gopal, HP Laboratories

The ubiquitous deployment of broadband access architectures to the home, coupled with an access-bandwidth technology discontinuity in the form of high-speed cable modems, will cause an explosion in broadband interactive data services to the home. The panel speakers will discuss services enabled by cable modems, the service software that is needed to provide these services, and the differences between this environment and other candidates for the NII including Video-On-Demand, and the Internet.

2:00 pm - 3:00 pm

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11. Award Papers

Best Student Paper:

vic: A flexible framework for packet video

Steven McCanne and Van Jacobson, University of California, Berkeley

Best Paper:

A confederation of tools for capturing and accessing collaborative activity

Scott Minneman, Steve Harrison, Bill Janssen, Gordon Kurtenbach, Thomas Moran, Ian Smith and Bill van Melle, Xerox PARC

3:30 pm - 5:15 pm

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12. Follow the Artists

Speaker: Carol Peters, daVinci Time & Space

High speed computing, multimedia capabilities, high speed networks, and authoring tools are the technical enablers of a new design language that will express new forms of entertainment, education, and information. This design language will allow visual, sound, and literary artists to speak through the new technology. To learn how to speak the language, the artists must start their lessons now. As partners to the artists, the technologists must learn how to listen to, follow, and create mechanisms for the artists. Thus will technologists discover how to specify and make accessible the new design language. Thus will the artists speak and invent. Technologists in service to artists will allow the new art forms to speak through the technology.

MULTIMEDIA'95 Workshops

MULTIMEDIA'95 is proud to be hosting a number of full-day, in-depth workshops on topics of great current interest to the members of the multimedia research community. Although participation in a workshop is by invitation only, most still have slots available. So if you see one to which you think you could make a contribution, don't hesitate to contact the organizer for more information. Please note that all workshop attendees are expected to register for the conference, and must in addition pay a workshop fee of \$50 which will be collected by the organizer. Take advantage of this unique opportunity to get the most out of MULTIMEDIA'95!

- Ephraim P. Glinert, MULTIMEDIA'95 Workshops Chair

W1: Workshop on Effective Abstractions in Multimedia Layout, Presentation, and Interaction

W2: Integrating Audio and Visual Media

W3: Evaluation Methods and Quality Criteria for Multimedia Applications

W4: NSF Research on Digital Libraries (CANCELLED)

W5: Adaptive Multimedia Technologies for People with Disabilities

W6: Intellectual Property Rights Management in the Electronic Information Society: A European Initiative in the ESPRIT Programme

W7: Multimedia Database Management Systems

W1: Workshop on Effective Abstractions in Multimedia Layout, Presentation, and Interaction

SATURDAY, Full Day

ORGANIZERS:

Isabel Cruz, Tufts University

Joseph Marks, Mitsubishi Electric Research Laboratories

Kent Wittenburg, Bell Communications Research

This workshop is concerned with abstract representations and methods for structuring of multimedia/hypermedia documents and interactions. We will focus on concepts and techniques that are useful for organizing heterogeneous information from the perspective of both end-user delivery and authoring. Problems to be discussed include spatial layout for visual presentation; temporal layout for presentation using animation and audio; determination of page content, linking structure and index structure for hypermedia documents; filtering, generalization, and customization of information in multimedia/hypermedia applications; and synergistic combination of media.

Contact Person:

Dr. Kent Wittenburg

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445 South Street

Morristown, NJ 07962

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Phone: (201) 829 4382

Fax: (201) 829 5981

W2: Integrating Audio and Visual Media

SATURDAY, Full Day

ORGANIZER:

Meera Blattner, University of California at Davis and Lawrence Livermore National Laboratory

Nonspeech audio, speech, video, and graphics are the output media of multimedia interfaces. For historical reasons, audio and visual media have not been integrated well in the human-computer interface, although these modalities are integrated in our real world experience. Can we build a systematic foundation for understanding the interpretation of information in both the auditory and visual domains together? To what other disciplines can we turn to learn how to design good multimedia interfaces? What examples do we have now of good integration in the auditory and visual domains? Do we attempt to mimic the real world, or should we strive to use media in new ways (for example, to use sound to replace touch)?

Contact Person:

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Fax: (510) 423 4139

W3: Evaluation Methods and Quality Criteria for Multimedia Applications

SATURDAY, Full Day

ORGANIZERS:

Franca Garzotto, Politecnico di Milano
Manfred Thuring, BIFOA / University of Cologne

To support effective evaluation of multimedia applications and product development, it is necessary to first define what must be evaluated, what constitute reasonable quality criteria, which metrics are suitable for measuring them, which evaluation procedures should be applied, and which existing standards can be employed. These issues will be discussed during the workshop by people from diverse backgrounds (researchers, application developers, multimedia publishers, distributors, and product managers), so that all may come away with a better understanding of evaluation criteria, quality assessment, and methods for systematic testing.

Contact Person:

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Hypermedia Laboratory

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W4: NSF Research on Digital Libraries (CANCELLED)

W5: Adaptive Multimedia Technologies for People with Disabilities

FRIDAY, Full Day

OGANIZERS:

Shi-Kuo Chang, University of Pittsburgh
Ephraim Glinert, Rensselaer Polytechnic Institute

As multimedia interfaces become ubiquitous, there is a danger that the requirement of using all the senses may deny additional communities access to information. In this workshop we will explore and define the future technologies needed to support multiple media choices that are selectable on several levels, so that the most appropriate media can be provided to each user. Topics discussed will include: use of multimedia in teaching and researching sign languages; virtual reality environments for people with disabilities; adapting GUIs for blind users; nonvisual representations for information; storage standards for sophisticated closed captioning and descriptive accompanying audio. The workshop is scheduled to immediately follow the conference, so that late-breaking developments can be addressed in the discussions. Attendees will be selected to include a mixture of experts on multimedia, experts in helping people with disabilities, and scientists with disabilities.

Contact Person:

Professor Shi-Kuo Chang
Dept. of Computer Science
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Pittsburgh, PA 15260

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Phone: (708) 679 3135 thru August 31, then (412) 624 8423
Fax: (708) 679 3166 thru August 31, then (412) 624 8465

W6: Intellectual Property Rights Management in the Electronic
Information Society: A European Initiative in the ESPRIT Programme

FRIDAY, Full Day

ORGANIZER:

Costantino Thanos, Consiglio Nazionale delle Ricerche, Pisa

The objective of this workshop is to present the most promising results of a number of related research projects conducted by the European ESPRIT program during the past 5 years, and which together defined a generic model for the management in an electronic society of intellectual property rights and copyright issues. Four discussion areas, each to be introduced by an expert in the field, are planned: information technology industries; publishing; museums; and libraries. Topics to be covered will include: overview of the various projects; the CITED model; technologies and implementations; the publisher- university relationship; numeric TV broadcasting; CD-ROM publishing; critical issues for educational and library systems; fee collecting and licensing agencies; multimedia authoring; requirements for standardization and infrastructure. We will conclude with an open discussion on the impact of this work on the business community.

Contact Person:

Dr. Costantino Thanos
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Fax: +39-50-554342

W7: Multimedia Database Management Systems

FRIDAY, Full Day

ORGANIZERS:

Bruce Berra, Syracuse University
Kingsley Nwosu, AT&T
Bhavani Thuraisingham, MITRE Corporation

This workshop will investigate issues in designing and developing M-DBMSs. A M-DBMS which supports distributed applications should integrate the two technologies of distributed/heterogeneous databases and multimedia data management. This integration is one of the greatest challenges faced by information systems researchers and developers, and will be the main focus of this workshop. Topics to be discussed include the following: data models; storage structures; system, schema and functional architectures; retrieval and update algorithms; metadata management for multimedia databases. Attendees will be chosen to include a mixture of people from the database and multimedia information systems communities.

Contact Person:

Dr. Bhavani Thuraisingham
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[Go back to Multimedia'95 home page](#)

[MM'95 Workshop Page / Hui Zhang / \[hzhang@cs.cmu.edu\]\(mailto:hzhang@cs.cmu.edu\)](#)

ACM Multimedia '95 - Exhibitor Prospectus

[Note: A snazzier-looking version of this exhibitor prospectus, with maps of the exhibit floor, is available on the WWW via <http://acm.org/MM95/>]

The Third Annual ACM International Multimedia Conference and Exposition

November 5-9, 1995
San Francisco, California

Sponsored by ACM, The First Society in Computing, SIGMM, SIGBIT, SIGCHI, SIGGRAPH, SIGBIO, SIGCOMM, SIGIR, and SIGOIS. In cooperation with SIGAPP, SIGCAPH, SIGMOD, and SIGOPS.

Be There!

Multimedia '95 is vital for the entire spectrum of progressive executives, managers, investors, researchers, designers/developers, technical staff, software engineers, educators, and artists working in any and all aspects of state-of-the-art multimedia research, development, and production -- the individuals who choose the products and technologies to be used in every major university and industrial research setting.

More than one-half of Multimedia attendees recommend, specify, or approve purchases of the products and services represented.

Attendees and presenters will represent both academia and industry, including telecommunications, fine arts, engineering, software development, multimedia production, electronic publishing, digital libraries, computer graphics, user interfaces, broadcast media, video-on-demand, interactive television, and networking.

ACM Multimedia '95 will be held at the Hyatt Regency (Embarcadero) in San Francisco, California from November 5 to November 9, 1995; Exhibit days are November 7 and 8.

Exhibit There!

Buying Power. The Net Buying Influence for Multimedia '94 was 54%. This means that 54% of the attendees are a buying influence for at least one of the product categories measured.

- 54% of attendees influence purchase of products.

- 48% of attendees came to see new products.

- 74% found potential new suppliers during Multimedia '94.

- 54% of U.S. attendees traveled more than 500 miles to attend Multimedia '94.

- 40% had planned significant purchases.

- 2000 people are expected to attend Multimedia '95.

- 57% attended the conference to see exhibits and had plans to return.

- 62% Spoke favorably of ACM Multimedia '94.

- 90% of attendees were financially encouraged to attend by some form of subsidy or reimbursement.

- Attendees came from 16 different U.S. states and from 13 nations.

What Attendees Expect

Exhibitors to display and present commercial solutions.
Working systems examples.
Manufacturers of hardware and software.
Companies and contacts for authoring tools.
Latest products, ideas, and live demonstrations.
Practical uses and applications, future trends.
Info about state of the art multimedia production.
New solutions to current technical problems.
New user interfaces for navigating and managing media.
Excellent technical quality.
Media for the physically challenged.
Multimedia's focus on social, cultural, and ethical applications.
Motion picture, television, and stock footage industries.
Pitfalls of multimedia and the best solutions
Audio media
Telecommunications

Do you fall in these categories of what attendees are looking for? Then exhibit with us this year!

Who Will Attend

Advertising and Marketing Managers
Animators and Illustrators
Art Directors
Cable Programmers and Operators
Cinematographers
Composers
Computer Dealers
Content Service Providers
Creative Directors
Developers
Educators
Engineering Managers
Film and Video and CD Editors
Graphic Designers
Industry Investors
Innovators
Interactive TV Specialists
Interface Software Designers
LAN Executives and Managers
Marketing Executives
Media Developers
Meeting Managers
MIS Managers
News Media
Multimedia Programmers
Operations Managers
Pre and Post Production Managers
Presentation Executives
Producers
Production Executives
Product Managers
Program Directors

Promotion Managers
Publishers and Editors
R and D Managers
Researchers
Software Publishers
System Managers and Engineers
Technical Executives
Technical Service Managers
Technical Writers
Telecom and Datacom Managers
VARs and VADs
Video Service Professionals
Writers

Previous Participants

ADVANCED IMAGING
ALPEC-TEAM
BAY AREA VIDEO COALITION
FORE SYSTEMS
FUTURE SYSTEMS
IBM - AS/400 DIV.
IBM - RISC SYSTEM DIV.
KALEIDA LABS
KLUWER ACADEMIC
MICRO PUBLISHING NEWS
MICROSOFT CORP.
PACIFIC BELL
PUBLICATIONS RESOURCE GRP.
SF STATE MULTIMEDIA STUDIES
SF CHAMBER OF COMMERCE
SILICON GRAPHICS
SPRINGER-VERLAG
THE MIT PRESS
UNIV. OF CA. - SANTA CRUZ
VOCAL TECHNOLOGY
WALNUT CREEK CDROM
XEROX PARC
YLEM (ARTISTS USING SCIENCE and TECHNOLOGY)

Exhibiting companies and industry experts will provide an international forum for papers, panels, videos, demonstrations, courses, workshops, and exhibits focusing on all aspects of this multidisciplinary field: from underlying technologies to applications and issues, and from theory to practice.

General Information

Cost of space for Exhibitors in Exhibit Hall is \$15.00 per square foot. Minimum space requirement is 80 square feet (8' x 10').

Exhibitors receive one complimentary full registration per company.

Cost of space for Publishers in Publishers' Row is \$12.00 per square foot. Sales of all types are restricted to Publishers' Row.

Sponsorships and advertising are available to Exhibitors only.

Exhibit Days are November 7 and 8, Tuesday and Wednesday.

WHO?

ACM MULTIMEDIA '95 - San Francisco, November 5-9, 1995 Conference and
Exposition Sponsored by ACM, The First Society in Computing

WHAT?

The premier world class conference and exposition for ACM Multimedia's multidisciplinary
matrix of technology, application, theory, practice, art, and philosophy.

WHERE?

Hyatt Regency (Embarcadero) San Francisco, California

WHEN?

November 5-9, 1995

WHY?

Leading companies are represented along with an array of innovative products, services,
and concepts. Buyers are present. Technical experts are looking for state-of-the-art
solutions to showcase their cutting edge innovations. Trade Show Leads are 70% less
expensive to close than field sales calls. Professional networking among peers and clients is
an invaluable tool for maintaining and reinforcing relationships which contribute to overall
effectiveness and good market positioning.

To Reserve Exhibit Space, Contact:

Don Collier @ DC Expositions, Inc.
555 Republic Drive, Suite 316, Plano, TX 75074
214-423-4286 214-423-4323 FAX dcexpo@aol.com

or

Brent Hailpern Exhibits Chair
(914) 784-6821 bth@watson.ibm.com

For General Conference Information, Contact:

Rajiv Mehrotra
(314) 516-6342 rajiv@arch.umsl.edu

To Register, Contact:

Danieli and O'Keefe
(508) 443-3330 or (800) 524-1851

Full TIFF images of exhibit brochure (big files): page 1, page 2, page 3, page 4.

Details of exhibit floor: page 1, page 2.