Coulda, Woulda, Shoulda: 20 Years of Multimedia Opportunities (20th Anniversary Panel)

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ABSTRACT
The ACM Special Interest Group on Multimedia (SIGMM) is celebrating the 20th anniversary of establishing its premier conference, the ACM International Conference on Multimedia (ACM Multimedia). The panel "Coulda, Woulda, Shoulda" is part of the celebration at the ACM Multimedia 2012. The panelists and the audience will discuss the 20 years of multimedia opportunities that our community has seen, took upon and pushed forward to advance the state of the art.

Categories and Subject Descriptors
C.2 [Computer-Communication Networks],H.2 [Database Management], H.4. [Information Systems Applications], H.5 [Information Interfaces and Presentation], I.4 [Image Processing and Computer Vision], J. [Computer Applications], K.8 [Personal Computing]

General Terms
Algorithms, Experimentation, Human Factors, Measurement, Performance, Standardization.

1. PANEL OVERVIEW
In August 1-6, 1993, the ACM Special Interest Group in Multimedia (SIGMM) came together in Anaheim, California, to talk about challenges, solutions, and results related to digital images, audio, video, graphics, and multimedia. The initial Anaheim conference, chaired by the General Chair J.J. Garcia-Luna-Aceves, started a strong tradition of annual conference meetings for the SIGMM community and this became the SIGMM's premier multimedia conference event, the ACM International Conference on Multimedia (ACM Multimedia).

The last 20 years has seen numerous interesting, innovative, engineering multimedia challenges, solutions, results, opportunities, failures and successes. The agenda of the annual meetings include problems in multimedia synchronization, multicasting, streaming, peer-to-peer, storage, multimedia scheduling, quality of service, content analysis, human interfaces quality of experiences, applications such as video conferencing, authoring, tele-presence, video-on-demand, games, and many others.

We have seen many generations of multimedia researchers, from industry and academia, bring to the conference new and different insights to problems of the time. We have seen new multimedia companies start and grow in the multimedia area, including Google, Yahoo!, YouTube, Akamai and Facebook. We have seen existing companies — such as Sony, Toshiba, Philips, IBM, Microsoft, HP, Apple — change their focus to include digital media including. We have seen multimedia companies merge including AltaVista, Inktomi and others. The bottom line is that the ACM Multimedia conference venue has seen many multimedia opportunities over the 20 years.

The aim of this panel is to look back at the various multimedia opportunities over the 20 years, and encourage a discussion what **did** we do, what **could** we have done, and what **should** we have done with the multimedia opportunities.

The Panel consists of four outstanding researchers who have been in the field over the last 20th years.

- Dr. Dick Bulterman has been an integral part of the multimedia authoring and document processing area, tackling problems of multimedia specifications and tools, and especially introducing and pressing for standardization of SMIL (Synchronized Multimedia Integration Language).
- Dr. Ramesh Jain has been part of the excitement around multimedia content analysis, addressing problems ranging from computer vision, multimedia databases to multimedia context and quality of experience.
- Dr. Lawrence Rowe has been part of the multimedia system community, working on fundamental system challenges, such as enabling the community to work with the MPEG1-encoder/decoder and player, and experiment with MBone multicast system.
- Dr. Ralf Steinmetz has been part of the multimedia networking community, working especially on challenging issues of synchronization, multimedia transport, and quality of services.

The Panel will start the discussion with reflections on multimedia opportunities from their areas of expertise, and then, together with the audience, will discuss the following issues and questions:

Q1: Nowadays, the multimedia industry is booming and represents a successful and important market. What do you think were the game changing contributions over the last 20 years to enable the prospering markets?

Q2: What were some of the missed opportunities that we as a research community did not see coming?

Q3: What results were you surprised to see get overwhelming attention, resources, and mind-share from academic and industrial

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community? What results, do you think, would gain attention, but did not get any from the academic/industry community?

Q4: What could and should the SIGMM/ACM Multimedia community do better to impact and increase development, deployment and acceptance of new multimedia results by the multimedia industry?

2. PANELISTS BIOS

Dick Bulterman is a senior researcher at CWI in Amsterdam, where since 2004 he heads the Distributed and Interactive Systems group. He holds the professorship of Distributed Multimedia Languages and Interfaces with the Department of Computer science at the Vrije Universiteit in Amsterdam. Previously, he led CWI's Department of Computer Systems and Telematics and he was head of the Multimedia and Human Computer theme at CWI. Prior to CWI, he was on the faculty of the Division of Engineering at Brown, where he was part of the Laboratory for Engineering Man/Machine Systems.

In 1999, he started Oratrix Development BV that transferred the group's SMIL-based GR*i*NS software to many parts of the civilized world. Dr. Bulterman received a Ph.D. in computer science from Brown University (USA). He also holds a Sc.M. in applied mathematics and computer science from Brown and a B.A. in political economics (with a minor in mathematics) from Hope College. He is on the editorial board of Springer Multimedia Systems Journal and Multimedia Tools and Applications. He is co-chair of the W3C Synchronized Multimedia working group and is a member of various conference steering committees. He is a member of Sigma Xi, the ACM and the IEEE.

Ramesh Jain is a Donald Bren Professor in Information & Computer Sciences at University of California, Irvine where he is doing research in *EventWeb* and *Experiential Computing* for developing and building *Social Life Networks*. Earlier he served on faculty of Georgia Tech, University of California at San Diego, The university of Michigan, Ann Arbor, Wayne State University, and Indian Institute of Technology, Kharagpur. He has published over 350 research papers. He is the recipient of several awards including the ACM SIGMM Technical Achievement Award 2010. He is a Fellow of ACM, IEEE, AAAI, IAPR, and SPIE.

Ramesh co-founded several companies, managed them in initial stages, and then turned them over to professional management. These included PRAJA in event-based business activity monitoring (acquired by Tibco); Virage for visual information management (a NASDAQ company acquired by Autonomy); and ImageWare for surface modeling (acquired by SDRC).

Dr. Lawrence A. Rowe has been President of FX Palo Alto Laboratory (FXPAL) since April 2007. Prior to that, he was a Professor of Electrical Engineering and Computer Science at the University of California, Berkeley (1976-2003). Dr. Rowe's research interests are in multimedia systems and applications, application development tools, and database management systems. He has been involved with several start-up companies as an angel investor, advisor, or active participant including the original Ingres Corporation, Inktomi, Dust, and NCast.

Dr. Rowe is an ACM Fellow, recipient of the SIGMM Technical Achievement Award in 2009, past chair of ACM SIG Multimedia (1998-2003), recipient of the 2002 U.C. Technology Leadership Council Award for his development of the Berkeley Lecture Webcasting System, and U.C. Irvine Donald Bren School of Information and Computer Science Distinguished Alumni Award in 2007.

Ralf Steinmetz is a Professor in the Department of Electrical Engineering at the Technical University, Darmstadt, Germany. He worked for over nine years in industrial research and development of distributed multimedia systems and applications. He has been head, since 1996, of the Multimedia Communications lab (KOM) at Darmstadt University of Technology, Germany. From 1997 to 2001 he directed the Fraunhofer (former GMD) Integrated Publishing Systems Institute IPSI in Darmstadt. In 1999 he founded the Hessian Telemedia Technology Competence Center (httc e.V.). His thematic focus in research and teaching is on multimedia communications with his vision of real "seamless multimedia communications". With over 200 refereed publications he has become ICCC Governor in 1999; was awarded the ranking of Fellow of both, the IEEE in 1999 and the ACM in 2002.

3. MODERATORS BIOS

Klara Nahrstedt is a Ralf and Catherine Fisher Professor in the Department of Computer Science at the University of Illinois at Urbana-Champaign. Her research interests are directed toward multimedia systems. She is the co-author of `Multimedia: Computing, Communications and Applications' published by Prentice Hall 1995, 'Multimedia Systems' published by Springer Verlag 2004, and the author of 'QoS in Wireless Networks over Unlicensed Spectrum', published by Morgan & Claypool Publisher 2012**.** She is the recipient of the IEEE Communication Society Leonard Abraham Award for Research Achievements, University Scholar, Humboldt Awardee, IEEE Technical Achievement Award, and the current Chair of SIG Multimedia.

Klara Nahrstedt received her Diploma in Mathematics from Humboldt University, Berlin, Germany in numerical analysis, her PhD from the University of Pennsylvania in the Department of Computer and Information Science. She is the member of ACM and an IEEE Fellow.

Malcolm Slaney is a principal scientist in the Conversational Systems Laboratory at Microsoft in Mountain View, CA. He is interested in building computational models of users, sounds, images, and video in order to better connect users and signals. For the last 20 years he has organized the Stanford CCRMA Hearing Seminar, where he is a (Consulting) Professor. Before joining Microsoft he was a researcher at Yahoo and IBM's Almaden Research Center, working on multimedia analysis and user models. He has also been employed by Interval Research, Apple's Advanced Technology Group, Schlumberger's Palo Alto Research Laboratory, and Bell Labs.

He is the coauthor of the book "Principles of Computerized Tomographic Imaging," which was recently republished by SIAM as a "Classics in Applied Mathematics." He is coeditor of the book "Computational Models of Auditory Function." He has served as an associate editor for IEEE Transactions on Audio, Speech and Language Processing, IEEE Multimedia Magazine, and the Proceedings of the IEEE. He is a Fellow of the IEEE.