



**Fraunhofer** Gesellschaft

## ▼ Multimedia and Security Workshop at ACM Multimedia '99 in Orlando

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If you have questions, please contact [Jana Dittmann](#).

## **Multimedia and Security Workshop at ACM Multimedia 30 th of October, 9 am - 6 pm plus 31 th of October, 9 am - 12 pm**

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Recently security has become one of the most significant problems for spreading new information technology. Digital data can easily be copied and multiplied without information loss. This requires security solutions for such fields as distributed production processes and electronic commerce, since the producers seek to provide access control mechanisms to prevent misuse and theft of material. The workshop analyses specific security problems of multimedia systems and multimedia material in the digital environment. Based on our discussion in the workshop at the ACM MM '98 in Bristol we want to continue with the state of the art evaluation and discuss future needs for the design of MM Security and legal aspects. We understand that the interest and importance of security was reflected in the great number of participants from all over the world in Bristol.

### **Objectives**

Based on these excellent experiences the objective of the workshop is to see the advantages in the field of multimedia and security. Especially in the field of copyright protection we will evaluate the progress of digital watermarking, the robustness and the practical usage for authentication and also for integrity checks. We want to address the fingerprint

Beside technical approaches legal requirements, the identification of design and acceptance problems for security solutions are further topics.

In the workshop we want also address the topic, that existing multimedia security mechanisms are not realised by using multimedia tools applying security. Thus the discussion is extend to the use of multimedia to perform security. Though security is recognised as an important issue in multimedia it is, ironically, mostly not presented by the new media. Usually, security algorithms are seen as background processes, invisible to the user. Based on the discussions on security in multimedia environments we want to analyse interactive multimedia tools which strengthen the producers acceptance to use available security features.

The intention of the workshop is to bring together experienced researchers, developers, and practitioners from academia and industry for a state of the art evaluation and discussions of topics and problems for multimedia security environments for the next century. The workshop reflects the strength and weaknesses of what the multimedia community has to offer to meet the needs of secure multimedia environments.

[More about the ACM Multimedia '99](#)

problem where a watermark contains customer specific information so that we produce different copies for each customer. Attackers can compare several fingerprinted copies to find and destroy the embedded identification string by altering the data in those places where a difference was detected.

Beside the fingerprinting we want to introduce to new cryptographic protocols like multiple key techniques for customer specific protection.

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## Session outline

### **30 th Oct**

- 1.) 9:00 - 9:15 Jana Dittmann: Welcome and introduction of participants: Multimedia and Security
- 2.) 9:15 - 9:45 Petra Wohlmacher: Overview and security requirements of multimedia systems and multimedia data, multiple-key cryptography,  
9:45 - 10:15 Legal Issues: Klaus Keus, BSI Germany - The German Digital Signature Act in the context of implementing the EU Directive for Electronic Signatures

**Coffee Break 10:15 - 10:45**

- 3.) To have more discussion in the workshop, the presenters are asked to give a short overview of their work and the problem and/or solutions, after each section are questions and discussions
- 10:45 - 11:15 Watermarking from a commercial view: David Hilton, Signum Technologies, England - Effective Models of Real Data to Enhance Digital Watermarking Methods
- Section (1): Integrity Detection - Fragile Watermarking and Digital Signatures**
- 11:15-11:40 Jiri Fridrich, Center for Intelligent Systems, T. J. Watson School SUNY, Binghamton: Detection of Digital Forgeries
  - 11:40-12:05 Edward Delp, Purdue University, USA: A New Fragile Image Watermark
  - 12:05-12:30 Ching-Yung Lin and Shih-Fu Chang, Columbia University, USA: Authenticating Pictures and Documents with Robust Digital Signature Techniques
  - 12:30-12:45 Jana Dittmann: Discussion and problem summary

**Lunch break: 12:45 - 14:00**

**Section (2): Robust Digital Image Watermarking - Algorithm, Protocols, Attacks and Robustness Improvements**

- 14:00-14:25 Andrew Z Tirkel: Advanced Spread Spectrum Watermarking

- 14:25-14:50 Deepa Kundur, University of Toronto, Canada: Improved digital watermarking through diversity and attack characterization
- 14:50-15:15 Masoud Alghoniemy, Ahmed H. Tewfik, University of Minnesota: Synchronisation Recovery in Image Watermarking
- 15:15-15:30 Klara Nahrstedt: Discussion and problem summary
- Coffee break 15:30 - 16:00**
- 15:30-15:55 Alessandro Piva, Department of Electronic Engineering, University of Florence, Italy: Improving DFT Watermarking robustness through optimum detection and synchronisation
- 15:55-16:20 Alexander Herrigel, DCT Digital Copyright Technologies, Switzerland: A Noise Removal based Attacks on Watermarked Images
- 16:20-16:45 Wenjun Zeng, Sharp Labs. of America, Inc., Camas, USA: Visual Optimization in Digital Watermarking
- 16:45-17:10 Brian Chen, MIT: Preprocessed and postprocessed quantization index modulation (QIM) methodes for digital watermarking
- 17:10-17:20 Klara Nahrstedt: Discussion and problem summary

4.) 17:20 - 18:00 Klara Nahrstedt, Edward Delp, Jana Dittmann, Ching-Yung Lin: **Round table wrap-up**: Open Questions - New Visions, questions to the presenters

## **31 th Oct**

5.) **Section (3): Watermarking for other Media Data and Aspects of Ecommerce**

- 9:00- 9:25 Nasir Memon, Polytechnic University Brooklyn, USA: Protocols for digital watermarking
- 9:25- 9:50 Oliver Benedens, IGD FHG, Darmstadt, Germany: 3D Watermarking
- 9:50- 10:15 Heather Yu, Panasonic Informationa and Networking Technology Lab: Content-based graph authentication
- 10:15-10:30 Jana Dittmann: Discussion and problem summary

### **Coffee break 10:30 - 11:00**

- 11:00-11:25 Klara Nahrstedt, University of Illinois at Urbana-Champaign, USA: Global Authentication Framework Preserving Privacy
- 11:25-11:50 Heather Yu, Panasonic Informationa and Networking Technology Lab: Active data hiding for secure electronic media distribution
- 11:50-12:00 Jana Dittmann: Discussion and problem summary

6.) 12:00 Jana Dittmann, Klara Nahrstedt, Petra Wohlmacher: Closing