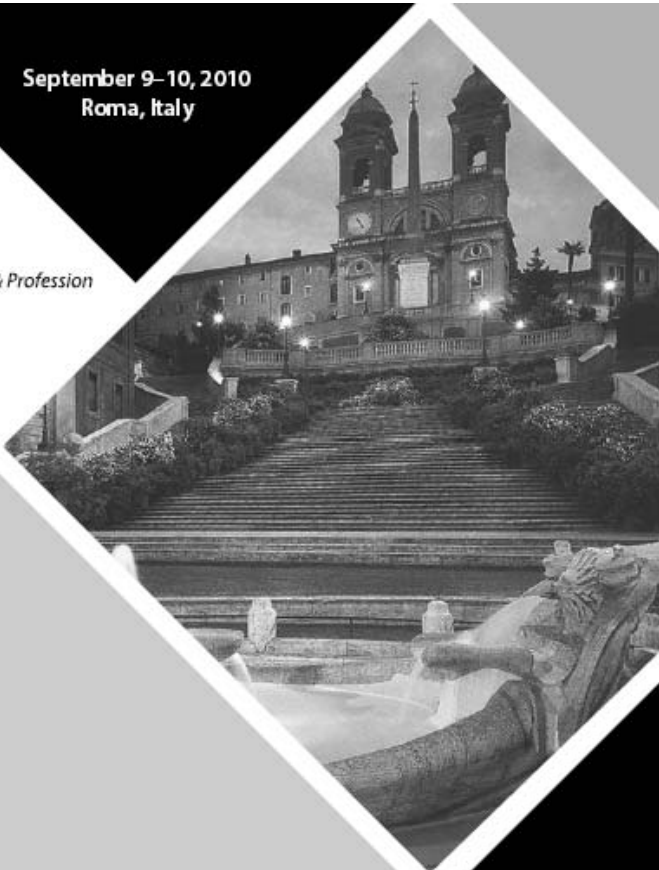


September 9–10, 2010
Roma, Italy



Association for
Computing Machinery

Advancing Computing as a Science & Profession



MM&Sec'10

Technical Program

Sponsored by:

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Supported by:

***Università degli Studi Roma TRE, University of Magdeburg, &
COST 2101 Biometrics for Identity Documents and Smart Cards***

The 12th ACM Workshop on Multimedia and Security, Sept. 9-10, 2010, Rome, Italy

MM&Sec'10 Chairs' Welcome

It is our great pleasure to welcome you to the *12th ACM Multimedia Security Workshop – MM&Sec'10*. Since its inception in 1998, The ACM Multimedia and Security Workshop has become a prominent forum for cutting-edge research in areas such as multimedia forensics, steganography, watermarking and DRM, biometrics, and other topics in the overlap of information security and multimedia signal processing.

The call for papers attracted 53 submissions, of which 32 papers (14 full and 18 short papers) were accepted on topics ranging from digital forensics, to data hiding, to encryption, and biometrics.

This year, the workshop is hosted at the “Università degli Studi Roma TRE,” in Roma, Italy, specifically by the telecommunication laboratory at the department of Applied Electronics.

This year the workshop hosts a special session on biometrics with a focus on privacy and security issues. Nowadays biometric based authentication technologies have indeed reached a level of maturity which makes possible their deployment to real life. However, biometric based authentication solutions pose some peculiar security and privacy issues, which need to be effectively addressed to increase the trust and confidence among users. Therefore, procedural and technological solutions, addressing security and privacy concerns to all potential users, need to be designed in order to increase the widespread and the acceptance of biometric based solutions on a worldwide scale. For these reasons, it is timely to bring together a body of research which might investigate the current trends for protecting security and privacy of biometric systems and which can pave the way to future developments of biometric based authentication systems. Further objectives are to identify key future research issues in the areas of multimedia security such as data protection, media forensics, hidden communications with focus in steganography and digital

watermarking as well as topics in technology policy and legal issues pertaining to multimedia security. We expect the workshop to motivate this research and to establish fruitful relationships with key actors from academia, industry, and government in the US and European and Asian countries. The workshop hosts an invited plenary talk about *Biometrics in Electronic Travel Documents* from Dr. Ari Juels, Chief Scientist, RSA Laboratories, Cambridge, MA, USA. The program schedules eight sessions and a rump session with a poster presentation.

We would like to first thank the authors for providing the content of the program. We are grateful to the program committee and external reviewers, both for the inestimable value of their reviews and for helping the program chairs meet stiff deadlines. We would also like to thank the “Università degli Studi Roma TRE” for hosting the workshop, and the EU COST Action 2101 Biometrics for Identity Documents and Smart Cards for its support. Finally, we would like to thank our sponsor, ACM SIGMM, for their continued support of these successful meetings. We hope that you will find this workshop a valuable source of thought-provoking results and opportunities to discuss emerging ideas with leading researchers from around the world.

Patrizio Campisi

*MM&Sec'10 General Chair
Dept. of Applied Electronics
Università degli Studi Roma TRE, Roma, Italy*

Scott Craver

Jana Dittman
MM&Sec'10 Program Chairs

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The 12th Workshop on Multimedia and Security,
September 9-10, Rome, Italy

Technical Program at a glance

Thursday, 9th September 2010

08:00 08:45	Registration
08:45 09:00	Welcome Address
09:00 10:00	Plenary Talk <i>Biometrics in Electronic Travel Documents</i> Ari Juels, Chief Scientist, RSA Laboratories, Cambridge, MA, USA
10:00 11:05	Digital forensics 1
11:05 11:30	Coffee break
11:30 13:00	Digital forensics 2
13:00 14:00	Lunch
14:00 15:45	Biometrics 1
15:45 16:15	Coffee break
16:15 17:15	Biometrics 2
18:00 19:30	Guided tour to “Musei Capitolini”
20:00 22:30	Social dinner

Friday, 10th September 2010

09:00 11:00	Digital watermarking 1
11:00 11:30	Coffee break
11:30 13:00	Digital watermarking 2
13:00 14:00	Lunch
14:00 15:00	Poster session and Rump session
15:00 16:35	Steganography and steganalysis
16:35 17:00	Coffee break
17:00 18:05	Encryption
18:05 18:15	Conclusions
18:15 18:30	Farewell and Goodbye

Thursday, 9th September 2010

08:00 08:45 **Registration**

08:45 09:00 **Welcome Address**

09:00 10:00 **Plenary Talk**

Biometrics in Electronic Travel Documents

Ari Juels, Chief Scientist, RSA Laboratories, Cambridge, MA, USA

Digital forensics 1 (Session Chair: Alessandro Piva)

10:00 10:25 *Estimating Vignetting Function From a Single Image for Image Authentication,*

Siwei Lyu (*SUNY University at Albany*)

10:25 10:45 *Linear row and column predictors for the analysis of resized images,*

Matthias Kirchner (*TU Dresden*)

10:45 11:05 *Color Laser Printer Forensics with Noise Texture Analysis*

JungHo Choi (*Korea Advanced Institute of Science and Technology*),

Hea-Yeoun Lee (*Kumoh National Institute of Technology*), Heung-Kyu Lee
(*Korea Advanced Institute of Science and Technology*)

11:05 11:30 **Coffee break**

Digital forensics 2 (Session Chair: Scott Craver)

11:30 11:55 *Anti-Forensics of Contrast Enhancement in Digital Images*

Gang Cao, Yao Zhao, Rongrong Ni, Huawei Tian
(*Beijing Jiaotong University*)

11:55 12:20 *Towards Event Ordering in Digital Forensics*

Arshad Jhumka, Chris Levett, Sarabjot Anand
(*University of Warwick*)

12:20 12:40 *FLD-Based Detection of Double-Compressed Speech Signals*

Xiaoying Feng (*University College London*)

12:40 13:00 *Screenshot Identification Using Combing Artifact from Interlaced Video*

Ji-Won Lee, Min-Jeong Lee, Tae-Woo Oh, Seung-Jin Ryu, Heung-Kyu Lee
(*Korea Advanced Institute of Science and Technology*)

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13:00 14:00 **Lunch**

Biometrics 1 (Session Chair: Andrzej Drygajlo)

14:00 14:25 *Negative Databases for Biometric Data*
Julien Bringer (*Morpho*), Hervé Chabanne (*Morpho, Télécom ParisTech*)

14:25 14:45 *Identification and Secret-Key Generation in Biometric Systems with Protected Templates*
Frans Willems, Tanya Ignatenko
(*Eindhoven University of Technology*)

14:45 15:05 *User interaction and automatically generation based reverse-engineer methods on a biometric hash algorithm for dynamic handwriting*
Karl Kümmel, Claus Vielhauer
(*University of Applied Sciences Brandenburg*)

15:05 15:25 *Binary Spectral Minutiae Representation with Multi-Sample Fusion For Fingerprint Recognition*
Haiyun Xu, Raymond Veldhuis
(*University of Twente*)

15:25 15:45 *Multi-Factor Biometrics for Authentication: A false sense of security*
Hisham Al Assam, Harin Sellahewa, Sabah Jassim
(*University of Buckingham*)

15:45 16:15 **Coffee break**

Biometrics 2 (Session Chair: Frans Willems)

16:15 16:35 *The impact of ARTMAP to appearance-based face verification*
Andrey Makrushin (*Otto-von-Guericke University*), Claus Vielhauer
(*University of Applied Sciences Brandenburg*)

16:35 16:55 *Face recognition with DAISY descriptors*
Carmelo Velardo, Jean-Luc Dugelay
(*EURECOM*)

16:55 17:15 *Palm Vein Biometrics Based on Infrared Imaging and Complex Matched Filtering*
Modris Greitans (*IECS*), Rihards Fuksis (*IECS*), Mihails Pudzs (*IECS*)

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Friday, 10th September 2010

Digital Watermarking 1 (Session Chair: Jessica Fridrich)

- 09:00 09:25 ***Modelling Watermark Communication Protocols using the CASPER Modelling Language***
Christian Kraetzer, Ronny Merkel, Robert Altschaffel, Eric Clausing, Maik Schott, Jana Dittmann
(*Otto-von-Guericke-University of Magdeburg*)
- 09:25 9:50 ***Robust Detection of Audio Watermarks after Acoustic Path Transmission***
Michael Arnold, Peter Baum, Xiao Chen
(*Technicolor*)
- 09:50 10:15 ***Video Watermarking using Motion Compensated 2D+t+2D Filtering***
Deepayan Bhowmik, Charith Abhayaratne
(*The University of Sheffield*)
- 10:15 10:40 ***A Highly Adaptable Capacity and Invisibility 3D Watermarking Based on Four-Points Sets***
Gao Xifeng (*Shandong University*)
- 10:40 11:00 ***Reversible watermarking via histogram shifting and least square optimization***
Michele Muzzarelli (*University of Roma TRE*), Marco Carli (*University of Roma TRE*), Giulia Boato (*University of Trento*), Karen Egiazarian (*Tampere University of Technology*)
- 11:00 11:30 **Coffee break**

Digital Watermarking 2 (Session Chair: Mauro Barni)

- 11:30 11:55 ***Towards robust and secure watermarking***
Fuchun Xie (*INRIA-Rennes Bretagne Atlantique Research Center, France*),
Teddy Furon (*INRIA-Rennes Bretagne Atlantique Research Center, France*)
Caroline Fontaine (*CNRS/Telecom Bretagne, France*)

11:55 12:20 ***Reversible Watermarking for Image Integrity Verification in Hierarchical PACS***

Marco Fontani, Alessia De Rosa, Roberto Caldelli, Francesco Filippini ,
Alessandro Piva (*Università di Firenze*),
Matteo Consalvo (*Azienda Sanitaria di Firenze*),
Vito Cappellini (*Università di Firenze*)

12:20 12:40 ***Zero False Positive 2-secure Fingerprinting Watermarking based on Combining Hamming Distance Conditions and Parent Pair Search***

Marcel Schaefer, Waldemar Berchtold, Sascha Zmudzinski, Martin
Steinebach
(*Fraunhofer Institute for Secure Information Technology SIT*)

12:40 13:00 ***Watermark Detection on Quantized Transform Coefficients using Product Bernoulli Distributions***

Peter Meerwald, Andreas Uhl
(*University of Salzburg*)

13:00 14:00 **Lunch**

Poster Session and Rump session (Session Chairs: Jessica Fridrich, Scott Craver)

14:00 14:20 ***Fully featured secure biometric smart card device for fingerprint-based authentication and identification***

Lionel Beaugé (*COVADIS S.A.*), Andrzej Drygajlo (*EPFL*)

14:20 15:00 ***Rump Session***

Steganography and steganalysis (Session Chair: Teddy Furon)

15:00 15:25 ***Quantitative Steganalysis of LSB Embedding in JPEG Domain***

Jan Kodovsky, Jessica Fridrich
(*Binghamton University*)

15:25 15:50 ***Steganography using Gibbs random fields***

Tomas Filler, Jessica Fridrich
(*Binghamton University*)

15:50 16:15 ***The Square Root Law Does Not Require a Linear Key***

Andrew Ker (*Oxford University*)

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16:15 16:35 ***Simple Algorithmic Modifications for Improving Blind Steganalysis Performance***
Valentin Schwamberger (*MPI for Biological Cybernetics*), Matthias Franz (*HTWG Konstanz*)

16:35 17:00 **Coffee break**

Encryption (Session Chair: Andrew Ker)

17:00 17:25 ***Privacy-Preserving Fingercodes Authentication***
Mario Di Raimondo (*Università di Catania*), Mauro Barni (*Università di Siena*), Dario Catalano (*Università di Catania*), Ruggero Donida Labati (*Università di Milano*), Pierluigi Failla (*Università di Siena*), Tiziano Bianchi (*Università di Firenze*), Dario Fiore (*Ecole Normale Supérieure - CNRS-INRIA*), Riccardo Lazzeretti (*Università di Siena*), Vincenzo Piuri (*Università di Milano*), Fabio Scotti (*Università di Milano*), Alessandro Piva (*Università di Firenze*)

17:25 17:45 ***eSketch: a Privacy-Preserving Fuzzy Commitment Scheme for Authentication using Encrypted Biometrics***
Pierluigi Failla (*Università di Siena*), Yagiz Sutcu (*Polytechnique Institute of New York University*), Mauro Barni (*Università di Siena*)

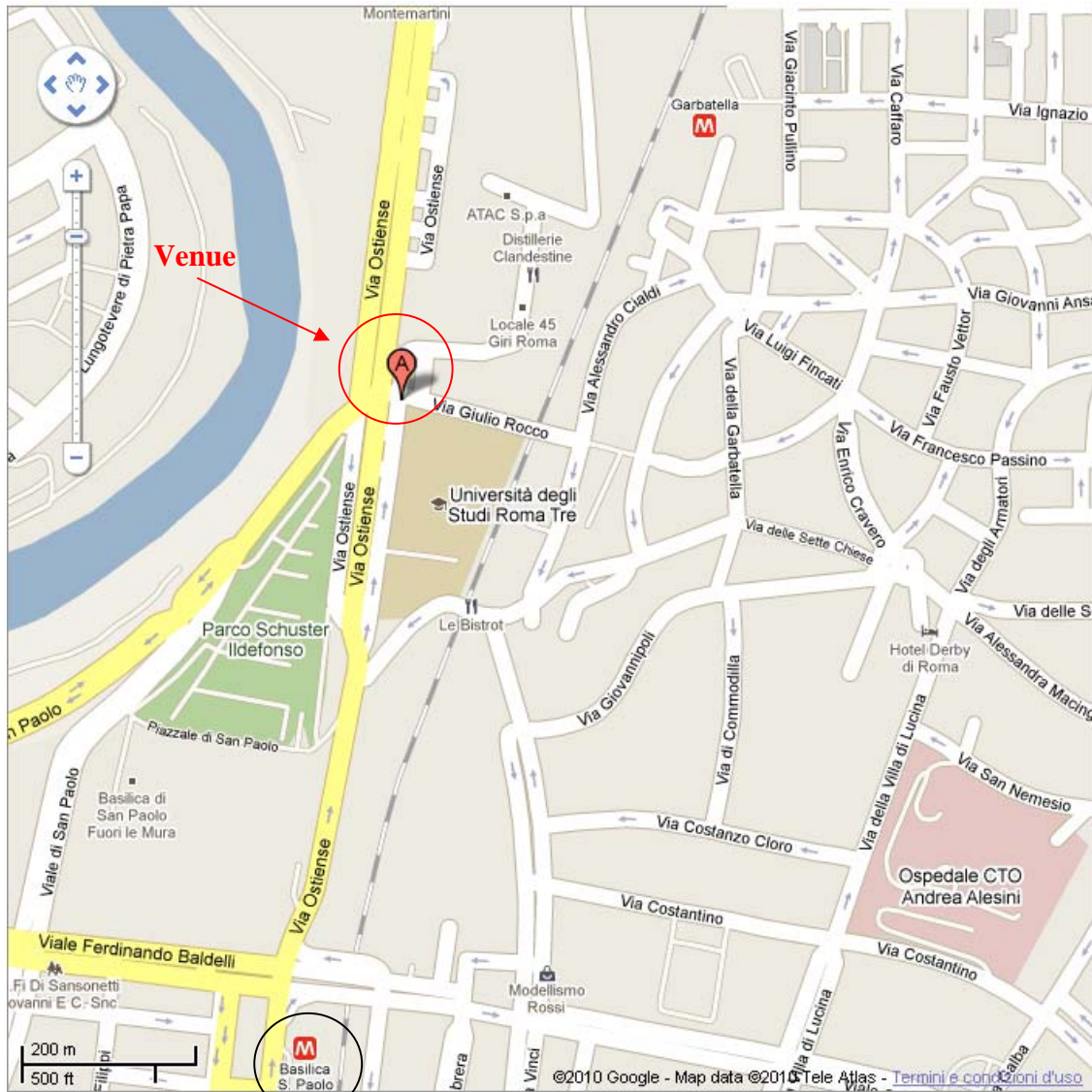
17:45 18:05 ***Subjective and Objective Quality Assessment of Transparently Encrypted JPEG2000 Images***
Thomas Stutz (*University of Salzburg*), Vinod Pankajakshan (*IRCCyN*), Florent Autrusseau (*IRCCyN*), Andreas Uhl (*University of Salzburg*), Heinz Hofbauer (*University of Salzburg*)

18:05 18:15 **Conclusions**

18:15 18:30 **Farewell and Goodbye**

VENUE

The 12th ACM Workshop on Multimedia and Security will be held at the “**Aula Magna**“ of the “**Università degli Studi Roma TRE**”, via Ostiense 159, 00154 Roma.



Subway stop

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SOCIAL EVENTS

Thursday 9 September 2010

17:20 18:00 Bus transfer from the workshop site to “Musei Capitolini”, Piazza del Campidoglio 1 - 00186 Roma

18:00 19:30 Guided tour to Musei Capitolini



20:00 22:30 Social dinner at “Basilica Restaurant Taberna Ulpia” which is located in the sixteenth-century palace of the Marquis of Gallo di Roccagiovine, built on the ruins of the second-century Basilica Ulpia. The ancient Roman taberna below, complete with a stretch of imperial road, has remained unchanged, as have the historic Traiano and Impero rooms.

Address

Foro Traiano 2, 00187 Roma (RM)

http://maps.google.it/maps?f=q&source=s_q&hl=it&geocode=&q=ristorante+taberna+ulpia,+roma&sll=41.442726,12.392578&sspn=15.472085,37.880859&ie=UTF8&hq=ristorante+taberna+ulpia,&hnear=Roma,+Lazio&ll=41.896016,12.485061&spn=0.007108,0.018497&z=16&iwloc=A&pw=2

A. Frangia Srl - Basilica Ristorante
Taberna Ulpia
Foro Traiano, 1b 2, 00187 Roma - 066 789980

