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UNITATEA EXECUTIVĂ PENTRU
FINANȚAREA ÎNVĂȚĂMÂNTULUI
SUPERIOR, A CERCETĂRII,
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Anexa II / la contractul de finanțare N5. 11 / 31.07.2012

SCIENTIFIC REPORT

-Abstract-

The issues approached by the Advanced Study School (SSA) "*Challenges in Cyber Security – from Paradigm to Implementation*" were inspired by the latest trends, studies and scientific research in the field of computer security at a global level, meeting *the present and future priorities* supported by the EU through the European Network and Information Security Agency (ENISA). In ENISA's most recent Report- "National Cyber Security Strategies"- published in May 2012, mention is made of the fact that "*The availability of cyberspace and the integrity, authenticity and confidentiality of data in cyberspace have become vital questions of the 21st century. Ensuring cyber security has thus turned into a central challenge for the state, business and society both at national and international level*". At a national level, the themes approached by the SSA are based on the priorities defined in "Romania's Cyber Security Strategy" (2011) which specify the fact that "*The Romanian state plays the part of the coordinator of the activities carried out at a national level for providing the cyber security, in accordance with the efforts initiated by the EU and NATO. Cyber security has become a priority issue for these organizations.*"

SSA debated topics oriented towards thorough knowledge as well as research trends for identifying new methods and mechanisms meant to integrate and improve the IT security solutions and to perfect the ones existing in industry. The intrinsic value of the paradigms developed in cyberspace security in the recent years, must also be completed by a validation, by testing and implementing in software and hardware security, which is a real challenge for any researcher in the IT field.

Mention should be made of the following themes approached by SSA:

- Data Mining for Cyber Security;
- New Tendencies and Directions in Modern Cryptography;
- Emerging Trends in e-Commerce Security;
- Security on Social Networks: Privacy and Anonymity;
- Security in Cloud Computing Technologies;
- Biometrics Authentication: Standards and Applications;
- Digital Rights Management (DRM) and Intellectual Property Protection;
- Electronic Signature and Digital Certificates.

The main goal of SSA was the debate of the most important and modern concepts in the field of cyberspace security, by the community of foreign and Romanian



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researchers- prominent personalities in the EU and U.S.A.- in lectures and thematic discussions. Based on the above mentioned themes, each invited foreign key-lecturer delivered two lectures in accordance with SSA agenda.

Creating cyber security knowledge aims at achieving some top scientific and technological results that are globally competitive, having as operational objectives: increasing the contribution of the Romanian research-development-innovation system to the global development through increased international visibility. These operational objectives have been reached by:

- the active participation of key-lecturers, prominent figures in this field, invited to the event;
- transferring the results towards the field of applied IT and society, by integrating them in the international knowledge networks of U.S.A. and France and, subsequently, at the global level and promoting excellence in research;
- attracting and training young researchers in order to increase the attractiveness of the research career by developing national research facilities, by providing easy access as well as by giving the possibility to develop career for those who have already outstanding performance.

The exploratory and innovative nature of the themes addressed could be found in the novelty of the proposed topics, in the recent results obtained by the participating researchers and teachers. All the themes presented in SSA were first validated by the Scientific Committee, which had as main task to ensure **the scientific quality of lectures and presentations**.

The Scientific Committee of the School of Advanced Studies (SSA) "*Challenges in Cyber Security – from Paradigm to Implementation*" was made of:

Traian Muntean (Aix-Marseille University, ERISCS Research Laborator, France) - President

Valentin Pau (Titu Maiorescu University, Romania) – Vice-president

Daniela Joița (Universitatea Titu Maiorescu, Romania) – Vice-president

Jean Louis Lanet (Universitatea Limoges, France) – Vice-president

Rolland Robert (ERISCS Research Laborator, France)

Ovidiu Daescu (University of Texas at Dallas, USA)

Sebastian Nicolăescu (Verizon Business, USA)

Adrian Atanasiu (University of Bucharest, Romania)

Iustin Priescu (Titu Maiorescu University, Romania)

Camelia Petrescu (Bucharest Polytechnic University, Romania)

Cristian Toma (Bucharest University of Economic Studies, România)

SSA is a valuable scientific organisation not only due to its program, but also due to the participation of prominent researchers and specialists in the field of information security -coming from USA, France and Romania-, who proposed results and new trends in the scientific development, thus contributing to the **research** and **innovation** in the field of information security at national and international level.



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The scientific quality has also been proved by the academic training of the participants coming from prestigious universities from France and the USA, members of some well-known scientific institutes: Aix-Marseille University, France, ERISCS Research Laboratory, France, University of Limoges, France, University of Texas at Dallas, USA, Verizon Business, New York, USA. Some of the delivered lectures in SSA are (the complete program is to be found on point 3 of this report and on the SSA site <http://cybersecurity.utm.ro>):

- Professor PhD D. H.C Alexandru T. Bogdan, corresponding member of the Romanian Academy - *New contemporary scientific paradigms of biotechnologies, bio-economics and eco-economics integrated with new multiple scientific concepts of globalized agri-food green power based on Cyber Security for intellectual property protection*
- Professor PhD Traian Muntean - Aix-Marseille University, ERISCS Research Laboratory, Franța - *PRIVACY: "Anonymat par Diffusion Sélective Hiérarchisée de Clés dans les Réseaux Mobiles";*
- Professor PhD Engineer Ovidiu Dăescu - University of Texas at Dallas, USA - *Discrete and computational geometry with application in Cyber Security*
- Professor PhD Jean-Louis Lanet - University of Limoges, France - *e-Commerce Security, Challenges in Secure Element Security*
- CS I. PhD Robert Rolland - ERISCS Research Laboratory, France - *Evolution of Modern Cryptography*
- Engineer PhD. Sebastian Nicolaescu - Verizon Business, New York, USA – *Cyber Security Monitoring on Environments with Imprecise Data*
- Professor PhD Adrian Atanasiu – University of Bucharest, Romania - *New Batch Verifying Scheme for Identifying Illegal Signatures*

Mention should be made of researchers and teachers from Romania who participated in SSA, members of prestigious institutions such as: Romanian Academy, University of Bucharest, Bucharest Polytechnic University, Military Technical Academy, Academy of Economic Studies, National Academy of Intelligence, National Defense University Carol I, Danubius University Galati, SIAT SA – the Postdoctoral School of Biodiversity, the Institute for Advanced Technologies, Titu Maiorescu University.

At the same time, we must underline the participation of researchers and experts in the field of cyber security - in the Ministry of Communications and Information Society, *Romanian National Computer Security Incident Response* (CERT-ro.eu), National Authority for Management and Regulation in Communications, The General Intelligence and Internal Protection Directorate (DIGIPI), Bucharest Tribunal -, and also business researchers: HP Romania, Intel Romania Software and Development Center, ORACLE Romania, KPMG, ROMTELECOM, UTI Group, CertSign, SIF Transilvania SA, RINA-SIMTEX etc. Thus, the stimulation of technology transfer, the effective use of results, innovation and the absorption and dissemination of results to companies will be promoted.



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In view of facilitating the knowledge transfer and the dissemination of the obtained information, the SSA scientific activity will be completed by the publication of a volume with ISBN code which contains a selection of the most valuable scientific lectures delivered.

When closing the conference and drawing the conclusions reached at the end of the 9 days of SSA, the representatives of Aix-Marseille University, ERISCS Research Laboratory and University of Texas at Dallas, USA suggested the identification of new opportunities for further cooperation in the cyber security field, as well as creating strategic partnerships between them and Titu Maiorescu University.

At the same time, the event promotion was achieved by creating a site (**cybersecurity.utm.ro**) and a campaign to promote SSA, by multiplying on CDs all presentations, as well as by distributing them to all participating universities, institutions and agencies.

As a result of the success obtained by the scientific quality of the themes presented in the SSA and of the satisfaction degree and positive feedback of both participants (**about 102 persons**) and key lecturers invited, as well as in view of achieving a **multiplying effect**, the Organizing Committee wishes to ensure the sustainability of SSA by continuing the cyber security project in future editions.

President of SSA,
Conf.dr.ing. **Iustin PRIESCU**

03.09.2012