CSS 2018

The 10th International Symposium on Cyberspace Safety and Security

October 29-31, 2018
Hotel La Bussola - Amalfi (Salerno), Italy

Conference Program

Co-Sponsored by:

UNIVERSITÀ DEGLI STUDI DI SALERNO
DIPARTIMENTO DI INFORMATICA

Contents

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Welcome Message from the CSS 2018 Chairs

On behalf of the Organizing Committee, it is our pleasure to welcome you to the 10th International Symposium on Cyberspace Safety and Security (CSS 2018), held in Amalfi, Italy, during October 29-31, 2018. The papers included in the proceedings present novel ideas or state-of-the-art perspectives regarding the topics of interest of the conference.

CSS aims at bringing together international researchers and practitioners from both academia and industry who are working in the areas of cyberspace safety- and security-related topics.

CSS 2018 was the next event in a series of highly successful events focusing on cyberspace safety and security. In the last 9 years, the CSS conference has been successfully held and organized all over the world: Xian, China (2017), Granada, Spain (2016), New York, USA (2015), Paris, France (2014), Zhangjiajie, China (2013), Melbourne, Australia (2012), Milan, Italy (2011), Chengdu, China (2009), and Sydney, Australia (2008).

In this edition the value, overall quality, and scientific and technical depth of the CSS conference continued to strengthen and grow in importance for both the academic and industrial communities. Such strength was evidenced this year by having a significant number of high-quality submissions resulting in a highly selective program. All submissions received at least two reviews according to a high-quality peer review process involving about 50 Program Committee members and several additional reviewers. On the basis of the review results, 27 papers were selected for presentation at the conference, with an acceptance rate lower than 32%. In addition, the conference also featured an invited talk.

The support and help of many people are needed in order to organize an international event. We would like to thank all authors for submitting and presenting their papers. We also greatly appreciated the support of the program committee members and the reviewers who carried out the most difficult work of carefully evaluating the submitted papers.

We sincerely thank all the chairs and technical program committee members. Without their hard work, the success of CSS 2018 would not have been possible. Last but certainly not least, our thanks go to all the attendees that contributed to the success of the conference. Finally, we are sure that the beautiful location and the relaxing atmosphere of the venue will be the perfect ingredients for a successful international event, providing a unique opportunity for both researchers and technologists to present, share, and discuss leading research topics, developments, and future directions in their area of interest.

Hoping all of you will enjoy the conference and find this a productive professional growth opportunity.

Amalfi, October 2018

The CSS 2018 Conference Chairs

Detailed Program

08:30-09:30 Registration
Attendance Kits available at the Conference Desk

09:30-10:00 Opening
Opening Ceremony: Welcome from the Conference Organizers and Salutation

10:00-11:00 Plenary Keynote: Humans are always the weak security link, but do they really have to?
Prof. Mauro Migliardi, University of Padua, Italy

The first and fundamental step to security is authentication: a secure identification of the user requesting an action, in fact, is a prerequisite to decide if the requested action is to be allowed or forbidden (access-control); furthermore, the capability to allow access to resource only to the correct parties is a pre-requisite to guarantee resource integrity. Hence, authentication is a cornerstone for all security. Any authentication mechanism, however, is not only required to be resilient to hackers attacks, but it must also be endowed with enough ease of use, to avoid turning into a nuisance that users actively struggle to deactivate with the undesired result of becoming the weak link in the security chain.

At the same time, the fruition of Internet services (be it pure information or more sophisticated services) has seen a steady evolutionary trend toward the use of mobile devices such as smartphones and tablet computers. For this reason, when dealing with cyberthreats, it is necessary to take into full account the peculiarities of each platform in general and, as it is quickly becoming the platform of choice, of mobile devices in particular.

In this talk, we will showcase the importance of usability for security mechanisms in general and authentication in particular and we will show how the evolution of the access patterns of users to cyber-resources, while widening the attack surface available to hackers also provides some very important points of leverage for the development of new security mechanisms sporting a very low impact on users.

11:00-11:20 Coffee Break

11:20-13:20 Session 1: Cybersecurity
Chair: **Mauro Migliardi**

1. Chedy Missaoui, Safa Bachouch, Ibrahim Abdelkader and Slim Trabelsi: Who is Reusing Stolen Passwords? An Empirical Study on Stolen Passwords and Countermeasures
2. Hugo Sbai, Michael Goldsmith, Samy Meftali and Jassim Happa: A survey of keylogger and screenlogger attacks in the banking sector and countermeasures to them
3. Munir Geden and Jassim Happa: Classification of Malware Families Based on Runtime Behaviour
4. Ivan Letteri, Giuseppe Della Penna and Giovanni De Gasperis: Botnet Detection in Software Defined Networks by Deep Learning Techniques
5. Vincenzo Conti, Simone Sante Ruffo, Alessio Merlo, Mauro Migliardi and Salvatore Vitabile: A bio-inspired approach to attack graphs analysis
6. Tony Quertier: Confidence curve for continuous authentication

13:20-15:20   Welcome Buffet

15:20-17:40   Session 2: Cybersecurity
Chair: **Ugo Fiore**

1.   Dragos Ionica, Florin Pop, Nirvana Popescu, Decebal Popescu and Ciprian Dobre: SCADA Security Concepts and Recommendations
2.   Thomas Clédel, Simon N. Foley, Nora Cuppens, Frédéric Cuppens, Yvon Kermarrec, Frédéric Dubois, Youssef Laarouchi and Gérard Le Comte: Towards the evaluation of end-to-end resilience through external consistency
3.   Ugo Fiore, Adrian Florea, Arpad Gellert, Lucian Vintan and Paolo Zanetti: Optimal partitioning of LLC in CAT-enabled CPUs to prevent side-channel attacks
4.   Walter Balzano and Fabio Vitale: GER-EN - GNSS Error Reduction using an Elastic Network based on V2V and LiDAR
5.   B. B. Gupta and Megha Quamara: A Dynamic Security Policies Generation Model for Access Control in Smart Card based Applications
6.   Flora Amato, Giovanni Cozzolino, Antonino Mazzeo and Francesco Moscato: An advanced methodology to analyse data stored on mobile devices
7.   Ferdinando Di Martino and Salvatore Sessa: A fragile watermarking and bilinear fuzzy equations

17:40-18:10   Coffee Break

Tuesday, October 30, 2018

08:30-09:30   Registration
Attendance Kits available at the Conference Desk

09:30-10:30 PhD Forum

10:30-10:50   Coffee Break

10:50-12:50   Session 3: Cryptography, Data Security and Biometric Techniques
Chair: **Roberto De Prisco**

1.   Paolo D'Arco, Roberto De Prisco and Alfredo De Santis: On the equivalence of 2-threshold secret sharing schemes and prefix codes
2.   Paolo D'Arco, Roberto De Prisco and Angel L. Perez Del Pozo: An efficient and reliable two-level lightweight authentication protocol
3.   Vincenzo Iovino and Marco Ripa: Einstein meets Turing: Relativistic Cryptography
4.   Katarzyna Kapusta and Gerard Memmi: Selective All-Or-Nothing Transform: Protecting Outsourced Data Against Key Exposure
5.   Jakub Guziur, Michał Pawlak, Aneta Poniszewska-Maranda and Bartosz Wieczorek: Light Blockchain Communication Protocol for secure data transfer integrity

13:00-15:00   Free Activities

15:00-17:00   Session 4: Cryptography, Data Security and Biometric Techniques
Chair: **Paolo D'Arco**

1. Michał Pawlak, Jakub Guziur and Aneta Poniszewska-Maranda: Towards the Blockchain Technology for System Voting Process
2. Ying Qin, Xiao Yang Shen and Zhen Yue Du: Privacy-Preserving SAT Solving Based on Projection-Equivalence CNF Obfuscation
3. Neyire Deniz Sarier: Privacy Preserving Biometric Identification on the Bitcoin Blockchain
4. Andrea F. Abate, Silvio Barra, Andrea Casanova, Gianni Fenu and Mirko Marras: Iris Quality Assessment: a Statistical Approach for Biometric Security Applications
5. Laiali Almazaydeh: Secure RGB Image Steganography Based on Modified LSB Substitution

17:00-17:20   Coffee Break

17:20-19:45   Social Event

20.00-22.00   Gala Dinner

Wednesday, October 31, 2018

08:30-09:00   Registration
Attendance Kits available at the Conference Desk

09:00-10:00   PhD Forum

10:00-10:20   Coffee Break

10:20-13:00   Session 5: Social Security, Ontologies and Smart Applications
Chair: **Elmarie Kritzinger**

1. Sunthoshan Govender, Marianne Loock and Elmarie Kritzinger: Enhancing Information Security Culture to Reduce Information Security Cost: A Proposed Framework
2. Fabio Clarizia, Francesco Colace, Marco Lombardi, Francesco Pascale and Domenico Santaniello: Chatbot: An Education Support System for student
3. Fabio Clarizia, Francesco Colace, Marco Lombardi, Francesco Pascale and Domenico Santaniello: A Multilevel Graph Approach for road accidents data interpretation
4. Elmarie Kritzinger, Marianne Loock and Emilia Mwim: Cyber safety awareness and culture planning in South Africa

13:00-15:00   Free Activities

The sessions are held in the meeting room of the Hotel La Bussola, Amalfi (Italy).

Time Table

Monday (October 29, 2018)		
Slot	Time	Description
Registration	08:30 – 09:30	Attendance Kits available at the Conference Desk
Opening	09:30 – 10:00	Opening Ceremony
Keynote	10:00 – 11:00	Plenary Keynote, Prof. Mauro Migliardi
Coffee Break	11:00 – 11:20	Coffee Break
Sessions	11:20 – 13:20	Session 1: Cybersecurity
Welcome Buffet	13:20 – 15:20	Welcome Buffet
Sessions	15:20 – 17:40	Session 2: Cybersecurity
Coffee Break	17:40 – 18:10	Coffee Break

Tuesday (October 30, 2018)		
Slot	Time	Description
Registration	08:30 – 09:30	Attendance Kits available at the Conference Desk
PhD Forum	09:30 – 10:30	PhD Forum
Coffee Break	10:30 – 10:50	Coffee Break
Sessions	10:50 – 12:50	Session 3: Cryptography, Data Security and Biometric Techniques
Free Activities	13:00 – 15:00	Free Activities
Sessions	15:00 – 17:00	Session 4: Cryptography, Data Security and Biometric Techniques
Coffee Break	17:00 – 17:20	Coffee Break
Social Event	17:20 – 19:45	Visit to Amalfi
Gala Dinner	20:00 – 22:00	Gala Dinner at Sensi Restaurant, Via Pietro Comite, 4, 84011 Amalfi SA

Wednesday (October 31, 2018)		
Slot	Time	Description
Registration	08:30 – 09:00	Attendance Kits available at the Conference Desk
PhD Forum	09:00 – 10:00	PhD Forum
Coffee Break	10:00 – 10:20	Coffee Break
Sessions	10:20 – 13:00	Session 5: Social Security, Ontologies and Smart Applications
Free Activities	13:00 – 15:00	Free Activities