ESORICS 2020 Workshops

Workshops Program
(online event)

17-18 September 2020
Guildford, United Kingdom

Edited by ESORICS 2020 Workshop Chair

Mark Manulis
Surrey Centre for Cyber Security
University of Surrey

Organized by

Sponsors

14th September 2020

Disclaimer
This program book aggregates contents received from the organisers of workshops affiliated with ESORICS 2020, as listed on the conference website: https://www.surrey.ac.uk/esorics-2020/workshops

Each workshop’s program includes links to 1-min Youtube videos where speakers introduce their papers; for some papers links might be missing. Presentations of workshop papers will be given live according to the schedule published in this book. Time zones: United Kingdom (BST). Each workshop will have a dedicated Zoom Webinar link. Some workshops have shared sessions as indicated on the overall schedule. A shared session will be accessible from the webinar of one of the workshops; which workshop will be streaming a shared session is visible from their programs.

Links to Zoom Webinars for all workshops will be made available to registered ESORICS 2020 participants via Slack and are therefore not included into this programme book.
Contents
Overview All Workshops – Thursday, 17th September 2020 ...............................................................3
Overview All Workshops – Friday, 18th September 2020 ....................................................................4
STM: 16th International Workshop on Security and Trust Management ............................................5
CBT: 4th International Workshop on Cryptocurrencies and Blockchain Technology ..........................7
DPM: 15th International Workshop on Data Privacy Management ..................................................10
STAST: 10th International Workshop on Socio-Technical Aspects in Security ..............................13
CyberICPS and SECPRE (joint programme via shared Zoom Webinar) ...........................................15
DeSECSys: 1st Workshop on Dependability and Safety of Emerging Cloud and Fog Systems ..........17
MSTEC: 2nd Model-driven Simulation and Training Environments for Cybersecurity ......................19
ETAA: 3rd International Workshop on Emerging Technologies for Authorization and Authentication ....21
SPOSE: 2nd Workshop on Security, Privacy, Organizations, and Systems Engineering ...................23
ADIoT: International Workshop on Attacks and Defenses for Internet-of-Things ............................24
DETIIPS: Interdisciplinary Workshop on Trust, Identity, Privacy and Security in Digital Economy .......25
MPS: 3rd International Workshop on Multimedia Privacy and Security ..............................................26
CPS4CIP: 1st International Workshop on Cyber-Physical Security for Critical Infrastructures Protection ...27
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<th>Time (UK)</th>
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## Overview All Workshops – Friday, 18th September 2020

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STM: 16th International Workshop on Security and Trust Management
Workshop website: https://www.iit.cnr.it/stm2020/

Thursday, 17th September 2020

09:00 – 09:15
WELCOME
Workshop chairs: Kostantinos Markantonakis and Marinella Petrocchi

09:15 – 10:45
SESSION 1: Security Properties and Attacks

- 09:15 – 09:45: Modelling of 802.11 4-Way Handshake Attacks and Analysis of Security Properties
  Abstract video link: https://youtu.be/LmYkC2q-PVk
  Rajiv Ranjan Singh, Jose Moreira, Tom Chothia and Mark D. Ryan

- 09:45 – 10:15: Reducing the Forensic Footprint with Android Accessibility Attacks
  Abstract video link: https://youtu.be/LJq5hsfCDX8
  Yonas Leguesse, Mark Vella, Christian Colombo and Julio Hernandez-Castro

- 10:15 – 10:45: A Novel Machine Learning Methodology for Detecting Phishing Attacks in Real Time
  Abstract video link: https://youtu.be/cAUlqgXdnXg
  Vishal Arora and Manoj Misra

10:45 – 11:30
KEYNOTE 1
Title: Identifying Vulnerabilities of Machine Learning Assets
Speaker: Ernesto Damiani

Abstract: Machine Learning (ML) is having a significant impact on computer security: on the one hand, ML can be used to build defensive systems such as malware and network attack detection; on the other hand, ML data and models are increasingly targeted by effective attacks. Identifying and alleviating threats to ML data assets is therefore essential. The main purpose of this talk is to discuss from the point of view of the security practitioner the foundations and the open issues toward a methodology for identifying threats and vulnerabilities of ML models, based on ML-specific definitions of CIA3-R security properties. We also discuss the idea of using Distributed Ledger Technology (DLT) to support a security control framework for countering such threats, making changing ML inference results or stealing ML data less attractive for attackers.

11:30 – 12:30
SESSION 2: Confidentiality Schema

- 11:30 – 12:00: Revocable Access to Encrypted Message Boards
  Abstract video link: https://youtu.be/U76Fq4logT0
  Fabian Schillinger and Christian Schindelhauer

- 12:00 – 12:30: Establishing Secure Communication Channels Using Remote Attestation With TPM 2.0
  Abstract video link: https://youtu.be/q1mG-kyHZWg
  Paul Georg Wagner, Pascal Birnstill and Jürgen Beyerer
Friday, 18th September 2020

09:15 – 10:00
KEYNOTE 2: STM PhD Award Talk
Title: Computational and Symbolic Analysis of Distance-Bounding Protocols
Speaker: Jorge Luis Toro Pozo

10:00 – 11:30
SESSION 3: Security Processes
- 10:00 – 10:30: Improved Feature Engineering for Free-Text Keystroke Dynamics
  Abstract video link: https://youtu.be/lc43IFQzH0
  Eden Abadi and Itay Hazan

- 10:30 – 11:00: Subversion-Resistant Commitment Schemes: Definitions and Constructions
  Abstract video link: https://youtu.be/3U0kOYek5o
  Karim Baghery

- 11:00 – 11:30: Challenges in IT Security Processes and Solution Approaches with Process Mining
  Abstract video link: https://youtu.be/KKyJ7GinyPc
  Aynseh Sundararaj, Silvia Knittl and Jens Grossklags
CBT: 4th International Workshop on Cryptocurrencies and Blockchain Technology
Workshop website: https://deic-web.uab.cat/cbt/cbt2020/

Thursday, 17th September 2020

09:00 – 10:15
WELCOME & KEYNOTE 1 (joint with DPM, use Webinar of CBT)
Workshop chairs (Jordi Herrera-Joancomartí & Joaquin Garcia-Alfaro)
Title: Design tradeoffs for Bitcoin Watchtowers
Speaker: Sergi Delgado (Talaia Labs)

10:15 – 10:30
BREAK

10:30 – 12:40
SESSION 1: Transactions, Mining & Second Layer
• 10:30-11:00 TxChain: Efficient Cryptocurrency Light Clients via Contingent Transaction Aggregation
Abstract video link: https://youtu.be/CR34go3jN8U
Alexei Zamyatin, Zeta Avarikioti, Daniel Perez and William J. Knottenbelt

• 11:00-11:30 VRF-Based Mining: Simple Non-Outsourceable Cryptocurrency Mining
Abstract video link: https://youtu.be/CKWRvCs8xsQ
Runchao Han, Haoyu Lin and Jiangshan Yu

• 11:30-12:00 On the selection of the LN client implementation parameters
Abstract video link: https://youtu.be/5vu2oYxWqdw
Luis Esteban Oleas Chavez, Jordi Herrera and Cristina Pérez-Solà

• 12:00-12:20 Fundamental Properties of the Layer Below a Payment Channel Network
(Short Paper) Abstract video link: https://www.youtube.com/watch?v=RJWHDI5s4xwI&feature=youtu.be
Matthias Grundmann and Hannes Hartenstein

• 12:20-12:40 ZeroJoin: Combining ZeroCoin and CoinJoin
(Short Paper) Abstract video link: https://youtu.be/FxhIMVmgriq
Alexander Chepurnoy and Amitabh Saxena

12:40 – 13:30
BREAK

13:30 – 15:00
SESSION 2: Signature Schemes & Formal Methods
• 13:30-14:00 Triptych: logarithmic-sized linkable ring signatures with applications
Abstract video link: https://youtu.be/qGKUk35jbVU
Sarang Noether and Brandon Goodell

• 14:00-14:30 Moderated Redactable Blockchains: A Definitional Framework with an Efficient Construct
Abstract video link: https://youtu.be/vF5wfxHSZJM
Mohammad Sadeq Dousti and Alptekin Küpçü

• 14:30-15:00 Radium: Improving Dynamic PoW Targeting
Abstract video link: https://youtu.be/ZIIlrfQcvhY
George Bissias
15:00 – 15:30
BREAK

15:30 – 17:30
SESSION 3: Privacy, SNARKs & Anonymity
• 15:30-16:00 Proof of No-Work: How to Incentivize Individuals to Stay at Home
  Abstract video link: https://youtu.be/XapibI-la-4
  Michael Bartholic, Jianan Su, Ryosuke Ushida, Yusuke Ikeno, Zhengrong Gu and Shinichiro Matsuo

• 16:00-16:30 Privacy Preserving Netting Protocol for Inter-bank Payments
  Abstract video link: https://youtu.be/4O_TPhRUQ8c
  Hisham Galal and Amr Youssef

• 16:30-16:50 Who let the DOGS out: a Group Signature scheme with Distributed Opening for Auditable but Anonymous communications
  (Short Paper) Abstract video link: https://youtu.be/7lTWAZisz5Y
  Marina Dehez-Clementi, Jean-Christophe Deneuville, Jérôme Lacan, Hassan Asghar and Dali Kaafar

• 16:50-17:10 Tracking Mixed Bitcoins
  (Short Paper) Abstract video link: https://youtu.be/qOBYS2rKYwY
  Tin Tironsakkul, Manuel Maarek, Andrea Eross and Mike Just

Friday, 18th September 2020

09:00 – 10:00
KEYNOTE 2 (joint with DPM, use Webinar of DPM)
Title: Is Website Fingerprinting Actually Practical?
Speaker: Marc Juarez (University of Southern California).

10:00 – 10:30
BREAK

10:30 – 12:30
SESSION 4: AI, Engineering & Authentication (joint with DPM, use Webinar of DPM)
• 10:30-11:00 Extracting speech from motion-sensitive sensors
  Abstract video link: https://youtu.be/WLPiONkwL38
  Safaa Azzakhnini and Ralf C. Staudemeyer

• 11:00-11:30 A Lightweight Approach for the Elicitation of Privacy and Data Protection Requirements
  Abstract video link: https://youtu.be/HdqqBa-VqWo
  Nicolás E. Díaz Ferreyra, Patrick Tessier, Gabriel Pedroza and Maritta Heisel

• 11:30-12:00 Towards Multiple Pattern type Privacy Protection in Complex Event Processing
  Abstract video link: https://youtu.be/XopypbdoYYg
  Saravanan Murthy Palanisamy

• 12:00-12:30 GPS-based Behavioral Authentication Utilizing Distance Coherence
  Abstract video link: https://youtu.be/SgMHRv5Jx-Q
  Tran Phuong Thao and Rie Shigetomi Yamaguchi
12:30 – 13:30
BREAK

13:30 – 15:00
PANEL (joint with DPM, use Webinar of DPM)

- **Title:** How cryptocurrency and blockchain technology will become a trust foundation for the New Normal while ensuring data privacy management?
  - **Panel Moderator:** Shin’ichiro Matsuo (Georgetown University)
  - **Panelists:**
    - Pindar Wong (VeriFi limited)
    - Nat Sakimura (OpenID foundation)
    - Julien Bringer (Convenor of ISO TC307/WG2)
    - Florian Kammueller (Middlesex University London)
    - Patrick McCorry (PISA Research)

15:00 – 15:10
CLOSING (joint with DPM, use Webinar of DPM)

KEYNOTE 1 TALK (check DPM program for KEYNOTE 2 TALK)

Sergi Delgado is the CEO of Talaia Labs. He got his PhD in CS from the Autonomous University of Barcelona (UAB) focusing on Bitcoin and Distributed Systems. In the past he has worked in the blockchain laboratories at both UCL and UIUC. He co-founded and led the Bitcoin development at PISAResearch. His recent research has focused on measuring (and inferring) the Bitcoin peer-to-peer network which was presented at Financial Cryptography (18 & 19) and Scaling Bitcoin (18 & 19). He is currently building a watchtower protocol for Bitcoin.

**Title:** Design tradeoffs for Bitcoin Watchtowers

**Abstract:** Bitcoin layer 2 protocols, such as the Lightning Network, introduce some additional assumptions to the security model of the system. One of the most important ones is the always-online assumptions, meaning that the nodes of the network require to remain always online (or at least reconnect periodically) in order to prevent potential loss of funds. Watchtowers were introduced to reduce that assumption, acting as non-trusted, non-custodial third party relayers. While this is generally the case, some protocols may do with less strict requirements. In this talk we will cover the different tradeoffs in watchtower design, ranging from storage requirements to privacy concerns.
Thursday, 17th September 2020

09:00 – 10:15
WELCOME & KEYNOTE 1 (joint with CBT, use Webinar of CBT)
Workshop chairs (Guillermo Navarro & Joaquin Garcia-Alfaro)
Title: Design tradeoffs for Bitcoin Watchtowers
Speaker: Sergi Delgado (Talaia Labs)

10:15 – 10:30
BREAK

10:30 – 12:40
SESSION 1: Fairness, Differential Privacy & Scalability

• 10:30-11:00 Fairness-Aware Privacy-Preserving Record Linkage
  Abstract video link: https://youtu.be/CIFHUdly5e4
  Dinusha Vatsalan, Joyce Yu, Wilko Henecka and Brian Thorne

• 11:00-11:30 Differential-Private Profiling of Anonymized Customer Purchase Records
  Abstract video link: https://youtu.be/y7XpmFK-aJ8
  Hiroaki Kikuchi

• 11:30-12:00 P-Signature-based Blocking to Improve the Scalability of Privacy-Preserving Record Linkage
  Abstract video link: https://youtu.be/9qveSxn-HNs
  Dinusha Vatsalan, Joyce Yu, Brian Thorne and Wilko Henecka

• 12:00-12:20 Integrating the data protection impact assessment into the software development lifecycle (Short Paper).
  Abstract video link: https://youtu.be/s3GSW9pd0lc
  Christopher Irvine, Dharini Balasubramaniam and Tristan Henderson

• 12:20-12:40 Citizens as Data Donors: Maximizing Participation through Privacy Assurance (Short Paper) Abstract video link: https://youtu.be/AnHm1zoY9FU
  Mohamad Gharib

12:40 – 13:30
BREAK

13:30 – 15:00
SESSION 2: Utility, Diversity & Leakage Resistance

• 13:30-14:00 Utility Promises of Self-Organising Maps in Privacy Preserving Data Mining
  Abstract video link: https://youtu.be/czGS4Sqralg
  Kabiru Mohammed, Aladdin Ayesh and Eerke Boiten

• 14:00-14:30 Multi-criteria Optimization Using l-diversity and t-closeness for k-anonymization
  Abstract video link: https://youtu.be/vuMIdbHxoaY
  Clémence Mauger, Gael Le Mahec and Gilles Dequen
• 14:30-15:00 ArchiveSafe: Mass-Leakage-Resistant Storage from Proof-of-Work
  Abstract video link: https://youtu.be/cKJcJ7rLdhA
  Moe Sabry, Reza Samavi and Douglas Stebila

15:00 – 15:30
BREAK

15:30 – 17:30
SESSION 3: Obfuscation, Contact Tracing & Privacy Loss
• 15:30-16:00 Joint Obfuscation for Privacy Protection in Location-Based Social Networks
  Abstract video link: https://youtu.be/DRO06gP85Cg
  Behnaz Bostanipour and George Theodorakopoulos

• 16:00-16:30 Modeling and analyzing the Corona-virus warning app with the Isabelle framework
  Abstract video link: https://youtu.be/SdGjqOYixwQ
  Florian Kammueller and Bianca Lutz

• 16:30-16:50 Tracking the Invisible: Privacy-Preserving Contact Tracing to Control the Spread of a Virus
  (Short Paper) Abstract video link: https://youtu.be/kWRaQ75HcBU
  Didem Demirag and Erman Ayday

• 16:50-17:10 Privacy Policy Classification with XLNet
  (Short Paper) Abstract video link: https://youtu.be/4CZi6cHbVyk
  Majd Mustapha, Katsiaryna Krasnashchok, Anas Al Bassit and Sabri Skhiri

• 17:10-17:30 Every Query Counts: Analyzing the Privacy Loss of Exploratory Data Analyses
  (Short Paper) Abstract video link: https://youtu.be/xrJH8a6BmX4
  Saskia Nuñez von Voigt, Mira Pauli, Johanna Reichert and Florian Tschorsch

Friday, 18th September 2020

09:00 – 10:00
KEYNOTE 2 (joint with CBT, use Webinar of DPM)
Title: Is Website Fingerprinting Actually Practical?
Speaker: Marc Juarez (University of Southern California).

10:00 – 10:30
BREAK

10:30 – 12:30
SESSION 4: AI, Engineering & Authentication
• 10:30-11:00 Extracting speech from motion-sensitive sensors
  Abstract video link: https://youtu.be/WLPiONkwL38
  Safaa Azzakhnini and Ralf C. Staudemeyer

• 11:00-11:30 A Lightweight Approach for the Elicitation of Privacy and Data Protection Requirements
  Abstract video link: https://youtu.be/HdqBa-VqWo
  Nicolás E. Díaz Ferreyra, Patrick Tessier, Gabriel Pedroza and Maritta Heisel
• 11:30-12:00 Towards Multiple Pattern type Privacy Protection in Complex Event Processing
   Abstract video link: https://youtu.be/XopvpbdoYYg
   Saravanan Murthy Palanisamy

• 12:00-12:30 GPS-based Behavioral Authentication Utilizing Distance Coherence
   Abstract video link: https://youtu.be/SgMHRv5Jx-Q
   Tran Phuong Thao and Rie Shigetomi Yamaguchi

12:30 – 13:30
BREAK

13:30 – 15:00
PANEL (joint with CBT, use Webinar of DPM)
• Title: How cryptocurrency and blockchain technology will become a trust foundation for the New Normal while ensuring data privacy management?
  Panel Moderator: Shin’ichiro Matsuo (Georgetown University)
  Panelists: Pindar Wong (VeriFi limited)
               Nat Sakimura (OpenID foundation)
               Julien Bringer (Convenor of ISO TC307/WG2)
               Florian Kammueller (Middlesex University London)
               Patrick McCorry (PISA Research)

15:00 – 15:10
CLOSING (joint with CBT, use Webinar of DPM)

KEYNOTE 2 TALK (check CBT Program for KEYNOTE 1 TALK)

Marc obtained his PhD in 2019 from the University of Leuven, Belgium. During his PhD he studied traffic analysis attacks and protocols that are resistant to it, with a focus on website fingerprinting attacks. He has also worked on censorship circumvention, privacy web search, and tracking in the web. Since October 2019, he is a Postdoc researcher in the University of Southern California where he is working on problems related to algorithmic bias and algorithmic fairness.

Title: Is Website Fingerprinting Actually Practical?

Abstract: Website fingerprinting is a traffic analysis technique that allows a local eavesdropper to learn information about the web pages visited over an encrypted channel. For the past two decades, the evaluations of website fingerprinting attacks presented in the academic literature have shown an ever-increasing accuracy. The consequences of such results, if they were to hold in practice, are alarming because they imply diminished privacy guarantees for web encryption protocols such as TLS and anonymity networks such as Tor. In the research community, there is a tension between works that show that the attacks are devastating, and others that show that such claims are inflated and that minimal defenses are required. In this talk, we will go through the dialogue between these two sides of the field and discuss the actual threat that website fingerprinting attacks pose to the privacy of web user.
STAST: 10th International Workshop on Socio-Technical Aspects in Security
Workshop website: https://stast.uni.lu/

Thursday, 17th September 2020

09:00 – 09:15
WELCOME
Workshop chairs

09:15 – 10:15
SESSION 1: Personality and Behavior
• How can Personality influence Perception on Security of Context-aware applications?
  Abstract video link: https://youtu.be/KX2NwUfLAUk
  Nelly Condori-Fernández, Franci Sunti-Lopez, Denisse Muñante and Maya Daneva
• Refining the Blunt Instruments of Cybersecurity: A Framework to Coordinate Prevention and Preservation of Behaviours
  Abstract video link: https://youtu.be/ztUL246h60s
  Simon Parkin and Yi Ting Chua

10:30 – 11:15
KEYNOTE
Title: Dysfunctional relationships in security – and how to move beyond them
Speaker: Angela Sasse

11:30 – 12:30
SESSION 2: Behavior in Face of Adversaries
• Natural Strategic Abilities in Voting Protocols
  Abstract video link: https://youtu.be/0Ln-TDeMFSg
  Wojtek Jamroga, Damian Kurpiewski and Vadim Malvone
• A Study of Targeted Telephone Scams Involving Live Attackers
  Abstract video link: https://youtu.be/Q1-MmbUnkrE
  Ali Derakhshan, Ian Harris and Marcel Carlsson

13:30 – 14:15
SESSION 3: Smart Environments
• User Privacy Concerns and Preferences in Smart Buildings
  Abstract video link: https://youtu.be/iIWGA6sqRwI
  Scott Harper, Maryam Mehrnezhad and John Mace
• Towards Usable Updates for Smart Home Devices (Work in Progress)
  Abstract video link: https://youtu.be/b6a5VL-gqsk
  Julie Haney and Susanne Furman

14:30 – 15:45
SESSION 4: Decentralized Systems and Digital Ledgers
• WARCHain: Blockchain-based validation of web archives
  Abstract video link: https://youtu.be/3hOMhaLFxHI
  Imre Lendák, Balázs Indig and Gábor Palkó
• Cyber 9/11 Will Not Take Place: A User Perspective of Bitcoin and Cryptocurrencies from Underground and Dark Net Forums
  Abstract video link: https://youtu.be/ZejZXE0Yw0A
  Simon Butler

• Self-Governing Public Decentralised Systems (Work in Progress)
  Abstract video link: https://youtu.be/nkJ_uIDR9-U
  Moritz Platt and Peter McBurney

16:00 – 16:45
SESSION 5: Reflections on Socio-Technical Aspects of Security
• Statistical Reliability of 10 Years of Cyber Security User Studies
  Abstract video link: https://youtu.be/D3NxrdEDb0g
  Thomas Groβ

• Towards Usable Updates for Smart Home Devices (Work in Progress)
  Abstract video link: https://youtu.be/zH92YbqFmc0
  Diego Sempreboni and Luca Viganò

16:45 – 17:00
CLOSING
Workshop chairs
CyberICPS and SECPRE (joint programme via shared Zoom Webinar)

CyberICPS: 6th Workshop on the Security of Industrial Control Systems and of Cyber-Physical Systems
Workshop website: https://www.ds.unipi.gr/cybericps2020/

SECPRE: 4th International Workshop on SECurity and Privacy Requirements Engineering
Workshop website: http://samosweb.aegean.gr/secpre2020/

Thursday, 17th September 2020

09:00 – 09:15
WELCOME
Workshop chairs

09:15-10:00
KEYNOTE
Title: TBA
Speaker: TBA

10:00 – 12:30
SESSION 1: Cyber security of Industrial Control Systems and of Cyber Physical Systems
  • Integrated Analysis of Safety and Security Hazards in Automotive Systems
    Abstract video link: https://youtu.be/n-HHSINperc
    Rhea Rinaldo and Dieter Hutter
  • Attack Path Analysis for Cyber-Physical Systems
    Abstract video link: https://youtu.be/3XbauFdyBxg
    Georgios Kavallieratos and Sokratis Katsikas
  • Identifying and Analyzing Implicit Interactions in a Wastewater Dechlorination System
    Abstract video link: https://youtu.be/hoXuISqItLY
    Jason Jaskolka
  • A Survey of Cryptography-Based Authentication for Smart Grid Communication
    Abstract video link: https://youtu.be/gTejVDI5Mac
    Nabin Chowdhury
  • Cybersecurity Awareness Platform with Virtual Coach and Automated Challenge Assessment
    Abstract video link: https://www.youtube.com/watch?v=N8lrmxI69o4
    Tiago Gasiba, Ulrike Lechner, Maria Pinto-Albuquerque and Amnoal Porwal

12:30 – 13:30
BREAK

13:30 – 14:30
SESSION 2: Vulnerabilities of Industrial Control Systems and of Cyber Physical Systems
  • IoT Vulnerability Scanning: A State of the Art
    Abstract video link: https://youtu.be/K6XhbufTNps
    Ahmed Amro and Vassileios Gkioulos
• Learning from Vulnerabilities - Categorising, Understanding and Detecting Weaknesses in Industrial Control Systems
  Abstract video link: https://youtu.be/0ot_3rGLIz8
  Richard J. Thomas and Tom Chothia

14:30 – 17:00
SESSION 3: Security and Privacy Design
• Self Adaptive Privacy in Cloud Computing Environments: Identifying the major socio-technical concepts
  Abstract video link: https://youtu.be/5JnMxEoHCBo
  Angeliki Kitsiou, Eleni Tzortzaki, Christos Kalloniatis and Stefanos Gritzalis

• Definition and Verification of Security Configurations of Cyber-Physical Systems
  Abstract video link: https://youtu.be/mDyL3HXOAhg
  Angel Jesus Varela Vaca, David García Rosado, Luis Enrique Sánchez, Maria Teresa Gómez López, Rafael M. Gasca and Eduardo Fernández-Medina

• GDPR Compliance: Proposed Guidelines for Cloud-based Health Organizations
  Abstract video link: https://youtu.be/AEK-hjTwpVzo
  Dimitra Georgiou and Costas Lambrinoudakis

• Aligning the Concepts of Risk, Security and Privacy towards the design of Secure Intelligent Transport Systems
  Abstract video link: https://youtu.be/vcHqKeKBlhg
  Vasiliki Diamantopoulou, Christos Kalloniatis, Christos Lyvas, Konstantinos Maliatsos, Matthieu Gay, Thanasis Kanatas and Costas Lambrinoudakis

• Identifying Implicit Vulnerabilities through Personas as Goal Models
  Abstract video link: https://youtu.be/Wt7WSbyS1Hg
  Shamal Faily, Claudia Jacob, Raian Ali and Duncan Ki-Aries
DeSECSys: 1st Workshop on Dependability and Safety of Emerging Cloud and Fog Systems
Workshop website: https://desecsys.futuretpm.eu/

Thursday, 17th September 2020

10:00 – 10:15
WELCOME
Workshop chairs

10:15 – 11:00
KEYNOTE 1
Title: SEAL: sealed-bid auction without auctioneers
Speaker: Feng Hao (University of Warwick)

Abstract: In this talk, I will present our recent work on e-auction. I will show how to combine standard zero-knowledge proof techniques with a novel Boolean logic to transform a simple Boolean-OR function to a MAX function. This results in a decentralized e-auction protocol that is dramatically more efficient than any previous schemes in terms of computation and communication complexity. Our work demonstrates, for the first time, that it is possible to securely and efficiently implement a Vickrey auction without involving any auctioneer. The removal of the dependence on any trustworthy auctioneers clears a major obstacle of deploying Vickrey auctions in practice, e.g., implementing them as smart contracts over an Ethereum-like blockchain.

11:00 – 12:30
SESSION 1: Trustworthy Computing
- ICITPM: Integrity Validation of Software in Iterative Continuous Integration Through the Use of Trusted Platform Modules (TPMs)
  Abstract video link: https://youtu.be/tU0Td-jSXPE
  Antonio Munoz, Aristeidis Farao, Jordy Ryan Casas, Christos Xenakis
- CloudVaults: Integrating Trust Extensions into System Integrity Verification for Cloud-based Environment
  Abstract video link: https://www.youtube.com/watch?v=HDLGb2V-Z7M
  Benjamin Larsen, Heini Bergsson, Thanassis Giannetsos

12:30 – 13:30
BREAK

13:30 – 14:15
KEYNOTE 2
Title: Measuring Online Behavioural Advertising and Other Adventures in Data Protection & Data Economics
Speaker: Nikolaos Laoutaris (IMDEA Networks)

Abstract: In this talk I will present our results on detecting behavioural targeting in online advertising and will cover the two families of methods that we have developed for this problem, based on 1) content-based analysis for identifying correlations between visited web-pages and obtained ads, and 2) frequency-based analysis using only impression counts to detect ads that follow a user across domains. I'll also cover my initial work on establishing transparency around online price discrimination, as well as how this work lead to the creation of the Data Transparency Lab while at Telefonica. I will complete my talk by introducing my new line of work around Human-Centric Data Economies and the related research group I am building at IMDEA Networks.
14:15 – 15:45
SESSION 2: Vulnerability Management and Security Analysis

• Making Picnic Feasible for Embedded Devices
  Abstract video link: TBA
  Johannes Winkler

• Sandboxing the Cyberspace for Cybersecurity Education and Learning
  Abstract video link: https://www.youtube.com/watch?v=36_VLKdmeNA
  Stylianos Karagiannis, Emmanouil Magkos, Christoforos Ntantogian, Luis Landeiro Ribeiro

15:45 – 16:00
BREAK

16:00 – 16:45
SESSION 3: Cyber Security EU-funded Projects

• ASTRID – AddreSsing Threats for virtuallSeD Services
• FutureTPM: Future Proofing the Connected World – A Quantum-Resistant Trusted Platform Module
• CUREX – Secure and private Health Data Exchange
• INCognito – Identity Verification with Privacy-Preserving Credentials for Anonymous Access To Online Services
• SECONDO – A Security ECONomics service platform for smart security investments and cyber insurance pricing in the beyonD 2020 netwOrking era

16:45 – 17:00
CLOSING
MSTEC: 2nd Model-driven Simulation and Training Environments for Cybersecurity

Thursday, 17th September 2020

09:00 – 09:15
WELCOME
Workshop chairs

09:15 – 10:15
SESSION 1:
• Cyber Taxi: A Taxonomy of Interactive Cyber Training and Education Systems
  Abstract video link: https://youtu.be/Q9PhP5GHa8U
  Marcus Knupfer, Tore Bierwirth, Lars Stiemert, Matthias Schopp, Sebastian Seeber, Daniela Pohn, and Peter Hillmann
• Cyber Range Training Programme Specification through Cyber Threat and Training Preparation Models
  Abstract video link: https://www.youtube.com/watch?v=7h2mWfDoeJo&feature=youtu.be
  Michail Smyrlis, Konstantinos Fysarakis, George Spanoudakis, and George Hatzivasilis

10:15 – 11:15
SESSION 2:
• A Pond Full of Phishing Games - Analysis of Learning Games for Anti-Phishing Education
  Abstract video link: https://www.youtube.com/watch?v=B3P6WBcoVcM
  Rene Roepke, Klemens Koehler, Vincent Drury, Ulrik Schroeder, Martin R. Wolf, and Ulrike Meyer
• Conceptualization of a CyberSecurity Awareness Quiz
  Abstract video link: https://youtu.be/FbtNlqAjwKw
  Sebastian Pape, Ludger Goeke, Alejandro Quintanar, and Kristian Beckers

11:15 – 12:15
SESSION 3:
• Towards the Monitoring and Evaluation of Trainees' Activities in Cyber Ranges
  Abstract video link: https://youtu.be/zu_wLzJ7xXE
  Chiara Braghin, Stelvio Cimato, Ernesto Damiani, Fulvio Frati, Elvinia Riccobene, and Sadegh Astaneh
• Automatically protecting network communities by systematically analysing the simulation results from malware epidemiological models
  Abstract video link: https://youtu.be/Iz1Jo7WCOo
  Xiao-Si Wang, Jessica Welding, and Tek Kan Chung

12:15 – 12:30
PANEL

12:30 – 13:30
BREAK
13:30 – 14:30
SESSION 4:
• Chasing Botnets: A Real Security Incident Investigation
  Abstract video link: https://youtu.be/4ZprVe9OdxE
  Martin Kunc and George Hatzivasilis

• Software System Exploration using Library Call Analysis
  Abstract video link: https://youtu.be/qCB8YzcX-vI
  Marinos Tsantekidis and Vassilis Prevelakis

14:30 – 15:30
SESSION 5:
• A pattern–driven adaptation in IoT orchestrations to guarantee SPDI properties
  Abstract video link: https://youtu.be/Qe-25s9PC4M
  Manos Papoutsakis, Konstantinos Fysarakis, Emmanouil Michalodimitrakis, Eftychia Lakka, Nikolaos Petroulakis, George Spanoudakis, and Sotiris Ioannidis

• Password Management: How Secure Is Your Login Process?
  Abstract video link: https://youtu.be/H_8LLJEosRw
  George Hatzivasilis

15:30 – 15:45
PANEL
ETAA: 3rd International Workshop on Emerging Technologies for Authorization and Authentication
Workshop website: https://www.iit.cnr.it/etaa2020/index.html

Friday, 18th September 2020

09:00 – 10:30
SESSION 1: Authentication
• Deep Learning based Sequential Mining for User Authentication in Web Applications
  Abstract video link: https://www.youtube.com/watch?v=zgMyWll-BnA&feature=youtu.be
  Matan Levi and Itay Hazan

• An Interoperable Architecture for Usable Password-less Authentication
  Abstract video link: https://youtu.be/9QHNCA5ntuw
  Matthew Casey, Mark Manulis, Christopher Newton, Robin Savage and Helen Treharne

• auth.js: Advanced Authentication for the Web
  Abstract video link: https://youtu.be/bgAzf5PWH-Q
  Neophytos Christou and Elias Athanasopoulos

10:30 – 11:00
BREAK

11:00 – 12:30
SESSION 2: Identity Management
• The cost of having been pwned: a security service provider’s perspective
  Abstract video link: https://youtu.be/iKxJRZ-Wt9k
  Gergely Biczók, Máté Horváth, Szilveszter Szébeni, István Lárn and Levente Buttyán

• Automated and Secure Integration of the OpenID Connect iGov Profile in Mobile Native Applications
  Abstract Video link: https://youtu.be/f4szI_u3C5c
  Amir Sharif, Roberto Carbone, Silvio Ranise and Giada Sciarretta

• Micro-Id-Gym: a Flexible Tool for Pentesting Identity Management Protocols in the Wild and in the Laboratory
  Abstract video link: https://youtu.be/XZ60bybva-s
  Andrea Bisegna, Roberto Carbone, Giulio Pellizzari and Silvio Ranise

12:30 – 14:00
BREAK

14:00 – 16:00
SESSION 3: Authorization
• IFTTT Privacy Checker
  Abstract video link: https://youtu.be/CFfYxIWjWc8
  Federica Paci, Davide Bianchin, Elisa Quintarelli and Nicola Zannone

• On Results of Data Aggregation Operation
  Abstract video link: https://youtu.be/AsvLzvFDfu0
  Francesco Di Cerbo, Marco Rosa and Rocio Cabrera LozoyaDear
• An automatic distributed firewalls configuration: An argumentation reasoning approach
  Abstract video link: https://youtu.be/jF5bBfysses
  Erisa Karafili and Fulvio Valenza

• A Comparison Among Policy Editors for Attributed Based Access Control Model
  Abstract video link: https://youtu.be/D9ig0npxKs8
  Fabio Martinelli, Christina Michailidou, Oleksii Osliak, Alessandro Rosetti, Antonio La Marra and Theo Dimitrakos
SPOSE: 2nd Workshop on Security, Privacy, Organizations, and Systems Engineering
Workshop website: https://spose-ws.github.io/

Friday, 18th September 2020

09:00 – 09:15
WELCOME
Workshop chairs: Angela Sasse, Frank Pallas, Jörg Pohle

09:15 – 9:45
KEYNOTE
Title: Responsibilization in Cyber Security
Speaker: Karen Renaud (Abertay University, Dundee)

9:45 – 10:45
SESSION 1:
• Nothing Standard About It: An Analysis of Minimum Security Standards in Organizations
  Abstract video link: https://www.youtube.com/watch?v=Mlul_uXXaoU
  Jake Weidman, Igor Bilogrevic, Jens Grossklags

• The Bigger Picture: Approaches to Inter-Organizational Data Protection Impact Assessment
  Abstract video link: https://youtu.be/SP-nih32yhE
  Dimitri Van Landuyt, Laurens Sion, Pierre Dewitte, Wouter Joosen

10:45 – 11:00
BREAK

11:00 – 12:00
SESSION 2:
• Systematic Scenario Creation for Serious Security-Awareness Games
  Abstract video link: https://youtu.be/cnyHYr-xHM0
  Vera Hazilov, Sebastian Pape

• Analysing Simulated Phishing Campaigns for Staff
  Abstract video link: TBA
  Melanie Volkamer, Martina Angela Sasse
ADIoT: International Workshop on Attacks and Defenses for Internet-of-Things
Workshop website:  http://adiot2020.compute.dtu.dk/

Friday, 18th September 2020

09:00 – 09:15
WELCOME
Workshop chairs

09:15 – 10:45
SESSION 1:
  • Cooperative Speed Estimation of an RF Jammer in Wireless Vehicular Networks
    Abstract video link:  https://www.youtube.com/watch?v=o4Vzt-YpbII
    Dimitrios Kosmanos, Savvas Chatzisavvas, Antonios Argyriou and Leandros Maglaras

  • Extended Abstract: Towards Physical-Layer Authentication for Backscatter Devices
    Abstract video link:  https://youtu.be/GQ3fEJi4WXQ
    Thiemo Voigt, Carlos Perez-Penichet and Christian Rohner

  • P2Onto: Making Privacy Policies Transparent
    Abstract video link:  https://youtu.be/2qlYLPUEhmc
    Evgenia Novikova, Elena Doynikova and Igor Kotenko

  • Extended Abstract - Transformers: Intrusion Detection Data In disguise
    Abstract video link:  https://youtu.be/0VagBKJvt2Q
    James Boorman, Benjamin Green and Daniel Prince
DETIPS: Interdisciplinary Workshop on Trust, Identity, Privacy and Security in Digital Economy
Workshop website: https://detips2020.github.io/

Friday, 18th September 2020

09:00 – 10:45
WELCOME by workshop chairs (Ioana Boureanu, Catalin Dragan, Mark Manulis) & SESSION 1:

- Post-Quantum Certificates for Electronic Travel Documents
  Abstract video link: https://www.youtube.com/watch?v=ycAg3ZD7VSU
  Gaetan Pradel and Chris Mitchell

  Abstract video link: https://youtu.be/REU6xKNeQYU
  Christian Roth, Mario Saur and Dogan Kesdogan

- Keeping it Human: A focus group study of public attitudes towards AI in banking
  Abstract video link: https://youtu.be/GzeP58Rynks
  Mhairi Aitken, Magdalene Ng, Ehsan Toreini, Aad Van Moorsel, Kovila Coopamootoo and Karen Elliott

- Creative Toolkits for TIPS
  Helen Collard and Jo Briggs

11:00 – 12:30
SESSION 2:

- Verifiable Contracting
  Sérgio Manuel Nóbrega Gonçalves, Alessandro Tomasi, Andrea Bisegna, Giulio Pellizzari and Silvio Ranise

- Risk Assessment of Sharing Cyber Threat Intelligence
  Abstract video link: https://youtu.be/vM6V28y5jC4
  Adham Albakri, Eerke Boiten and Richard Smith

- IMC: A Classification of Identity Management Approaches
  Abstract video link: https://youtu.be/uvWMDciaabU
  Daniela Pöhn and Wolfgang Hommel

- Development of Trust Infrastructures for Virtual Asset Service Providers
  Abstract video link: https://youtu.be/6dKu8CovkLo
  Thomas Hardjono
Friday, 18th September 2020

13:30 – 14:30
WELCOME by workshop chairs & KEYNOTE 1
Title: Forensics in the encrypted domain: Analysis of Networks Stream to Detect Keystrokes and Audio-Video User Behaviour
Speakers: Jana Dittmann and Christian Kraetzer

14:30 – 15:00
KEYNOTE 2
Title: Introduction to the new JPEG Fake Media working group
Speaker: Frederik Temmermans

15:00 – 15:30
BREAK

15:30 – 17:00
SESSION 1:

- 15:30-16:00 You've got nothing on me! Privacy Friendly Face Recognition Reloaded
  Abstract video link: https://youtu.be/cE53uuMAfgo
  Stephan Escher, Patrick Teufert, Lukas Hain, and Thorsten Strufe

- 16:00-16:30 Twizzle - A Multi-Purpose Benchmarking Framework for Semantic Comparisons of Multimedia Object Pairs
  Abstract video link: https://youtu.be/IsDnYaxvYYI
  Stephan Escher, Patrick Teufert, Robin Hermann, and Thorsten Strufe

- 16:30-17:00 OR-Benchmark: An Open and Recongurable Digital Watermarking Benchmarking Framework
  Abstract video link: https://cyber.kent.ac.uk/research/OR-Benchmark/MPS2020_abstract_video.mp4
  Hui Wang, Anthony T.S. Ho, and Shujun Li
CPS4CIP: 1st International Workshop on Cyber-Physical Security for Critical Infrastructures Protection
Workshop website: https://sites.google.com/fbk.eu/cps4cip20

Friday, 18th September 2020

09:00 – 09:45
WELCOME by workshop chairs & KEYNOTE 1
Chairs: Habtamu Abie & Silvio Ranise
Title: Digital Twins in Industrial Ecosystems: Challenges, Security Issues and Countermeasures
Speaker: Cristina Alcaraz, University of Málaga

09:45 – 10:45
SESSION 1: Security Threat Intelligence
Chairs: Habtamu Abie & Silvio Ranise
• Privacy-Preserving CCTV Analytics for Cyber-Physical Threat Intelligence
  Abstract video link: https://www.youtube.com/watch?edufilter=NULL&v=Gbr9d7tLYKY
  Jürgen Neises, Adrien Besse and Jean-Baptiste Rouquier

• TLSAssistant goes FINSEC: A Security Platform Integration Extending Threat Intelligence Language
  Abstract video link: https://youtu.be/oM9se6e1HV0
  Salvatore Manfredi, Silvio Ranise, Giada Sciarretta and Alessandro Tomasi

• Cyber Threat Monitoring Systems - Comparing attack detection performance of ensemble algorithms
  Eva Maia, Bruno Reis, Isabel Praça, Adrien Becue, David Lancelin, Samantha Dauguet Demailly and Orlando Sousa

• FINSTIX: a Cyber-Physical Data Model for Financial Critical Infrastructures
  Abstract video link: https://youtu.be/-eRYoizOSBg
  Giorgia Gazzarata, Ernesto Troiano, Luca Verderame, Maurizio Aiello, Ivan Vaccari, Enrico Cambiaso and Alessio Merlo

10:45 - 11:00
BREAK

11:00 – 11:45
SESSION 2: Data Anomaly detection: Predict & Prevent
Chairs: Isabel Praça
• Inferring anomaly situation from multiple data sources in Cyber Physical Systems
  Abstract video link: https://youtu.be/9ehnYUnJB-w
  Sara Baldoni, Giuseppe Celozzi, Alessandro Neri, Marco Carli and Federica Battisti

• Fusing RGB and Thermal Imagery with Channel State Information for Abnormal Activity Detection using Multimodal Bidirectional LSTM
  Abstract video link: https://youtu.be/iSN3Y92ZTh0
  Nikolaos Bakalos, Athanasios Voulodimos, Nikolaos Doulamis, Anastasios Doulamis, Kassiani Papasotiriou and Matthaios Bimpas

• A Cloud-Based Anomaly Detection for IoT Big Data
  Omri Soceanu, Allon Adir, Lev Greenberg, Ehud Aharoni and Habtamu Abie
11:45 - 12:00
BREAK

12:00 – 12:30
SESSION 3: Computer Vision & Dataset for Security
Chairs: Federica Battisti
• An advanced Framework for Critical Infrastructure Protection using computer vision technologies
  Abstract video link: https://youtu.be/dxMirSzbsiQ
  Krishna Chandramouli and Ebroul Izquierdo

• A Comprehensive Dataset from a Smart Grid Testbed for Machine Learning based CPS Security Research
  Abstract video link: https://youtu.be/HcSYNoxoEZk
  Chuadhry Mujeeb Ahmed and Nandha Kumar

12:30 - 13:30
BREAK

13:30 - 14:00
KEYNOTE 2
Chairs: Federica Battisti
Title: Cyber physical security in automotive: the new challenge for smart cities
Abstract video link: https://youtu.be/ldo63FrRbHg
Speaker: Federica Pascucci, Roma Tre University

14:00 – 14:45
SESSION 4: Security Management & Governance
Chairs: Rita Ugarelli
• Cross-Domain Security Asset Management for Healthcare
  Abstract video link: https://youtu.be/3xWq0PNLkQc
  Federico Stirano, Francesco Lubrano, Giacomo Vitali, Giuseppe Varavallo, Paolo Petrucci and Fabrizio Bertone

• Towards a global CI's cyber-physical security management and joint coordination approach
  Abstract video link: https://youtu.be/FYORiS4vKXE
  Vasiliki Mantzana, Eftichia Georgiou, Anna Gazi, Ilias Gkotsis, Ioannis Chasiotis and Georgios Eftychidis

• Toward a Context-Aware Methodology for Information Security Governance Assessment Validation
  Abstract video link: https://youtu.be/W1TR0QmsxZP
  Marco Angelini, Silvia Bonomi, Claudio Ciccotelli and Alessandro Palma

14:45 - 15:00
BREAK

15:00 – 15:30
SESSION 5: Impact Propagation & Power Traffic Analysis
Chairs: Luca Verderame
• Impact Propagation in Airport Systems
  Corinna Koepke, Kushal Srivastava, Louis Koenig, Natalie Miller, Mirjam Fehling-Kaschek, Kelly Burke, Matteo Mangini, Isabel Parca, Alda Canito, Olga Carvalho, Filipe Apolinario, Nelson Escravana, Nils Carstengerdes and Tim Stelkens-Kobsch
- A Comparative Analysis of Emulated and Real IEC-104 Spontaneous Traffic in Power System Networks
  Abstract video link: https://youtu.be/irEVXh3v7_c
  Chih-Yuan Lin and Simin Nadjm-Tehrani

15:30 - 16:00
CLOSING & PLANNING
Chairs: Habtamu Abie & Silvio Ranise

KEYNOTE TALKS

Prof. Cristina Alcaraz is an Associate Professor in the Computer Science Department at the University of Málaga. She has been awarded two competitive postdoctoral fellowships: Marie-Curie in 2012 and Ramón-y-Cajal in 2015, and was a guest researcher at NIST (2011–2012) visiting later the Royal Holloway (2012–2014, under the Marie-Curie fellowship), UCBM (2017, Rome) and the University of Piraeus (2019, Athens). She has been involved in European (e.g., FACIES, SealedGRID and CyberSec4Europe) and national research projects (e.g., SADECEI-4.0, SADCIP, PERSIST, PISCIS, SECRET, TIGRIS), focusing on topics related to CIP (security in Smart Grids, SCADA systems, cyber-physical systems and Industry 4.0) and Digital Twins security. So far, she has more than 75 publications and serves on international conference committees and on Editorial Boards of journals in CIP and information security.

Title: Digital Twins in Industrial Ecosystems: Challenges, Security Issues and Countermeasures

Abstract: Increasingly, we are witnessing how the new information technologies are being introduced into industrial systems to modernize their ecosystems and optimize services. One of the most novelty technologies in this field is precisely the Digital Twin, which allows to simulate states of the physical world, predict behavior and improve the quality of the product, service or system (e.g., a manufacturing system, a Smart Grid system or a nuclear plant). However, in this adaptation we must also be aware of: (i) the new challenges that this technology could require for its implementation in complex and critical systems; (ii) the security issues that this technology could bring in critical contexts; and (iii) the countermeasures that we should be considered in the future.

Ass. Prof. Federica PASCUCCI received the Laurea Degree (M.S.) in Computer Science and Control Engineering from University of Roma Tre in 2000 and the PhD Degree in Systems Engineering from the University of Rome “La Sapienza” in 2004. Since 2006, she is Assistant Professor of Robotics and Automatic Control at the University of Roma Tre. Her research interests are in the field of robotics, cyber-physical systems, analysis and design of networked embedded control systems, with applications to sensor actuators networks. She addresses resilient design of cyber-physical systems and critical infrastructures. He has published over 100 journal and conference papers and book chapters. With the MCIP-Lab group, she has been principal investigator in several European re- search projects (FP7 ECHORD, RISING, REFIRE) and in many national projects (RAMPS, EXPLORERS, Smart Environments, MISE-ENEA PAR projects).

Title: Cyber physical security in automotive: the new challenge for smart cities

Abstract: The advent of the Internet of things and connected technologies has enabled large changes in real-life applications. Autonomous car, that was a main dream in science fiction for a long time, is becoming a real consumer-level object as several companies start developing their own models. While autonomous vehicles have the potential to reshape transport and society, reducing air pollution and traffic congestion, one of the major issues facing developers is their security. Since autonomous cars are cyber physical systems, security vulnerabilities turn to be far more dangerous than malicious email or stolen private data. Malicious attacks to autonomous vehicle can physically harm passengers or pedestrians or compromise the transportation system. In this talk, the security issues related with vehicle-to-everything communication are addressed: this system will enable most of the services provided for the transportation system in future smart cities.