

UNIVERSITÀ DEGLI STUDI DI MILANO

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Emanuele Bellini

CURRICULUM VITAE

INFORMAZIONI PERSONALI (NON INSERIRE INDIRIZZO PRIVATO E TELEFONO FISSO O CELLULARE)

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Abilitazione INF/01 - Pending

Indicators:

1: Journal Papers 10 (Threshold - 4),

2: Citation 186 (Threshold -157),

3: H-index 8 (Threshold - 7)

	H-index	Publications	Citations	Co-authors
Scopus*	8	38	187	81
Google Scholar*	10	64	321	

*Accessed 15/09/2020

1- RESEARCH ACTIVITIES

1.1 Main topics

My research is focused on cross-disciplinary theme as Complex Cyber Physical Social Systems (CCPSS) that are analysed along three main conceptual lines: Resilience, Trust and Performance.

Resilience

Resilience is a multi-faced and not yet standardized concept so that a number of definitions and assessment methods exist. Resilience has emerged as an attractive concept with respect to Cyber Physical Social Systems, including IoT networks [J7, C6] and critical infrastructures [J1, J4, C7,C8, C9, C10, C11, C12, C13, W7, W8].

Complex systems need to be considered stochastic, dynamic, and unpredictable by nature and resilience should be in direct relation with how a system performs, and how capable it is in controlling performance and coping with changing conditions. The research has been supported by the H2020-RESOLUTE project of which I was the deputy coordinator.

Resilience has been approached using a Big Data driven approach in the context of Smart City. The results of the project include a) the definition of a new ontology able to accommodate heterogeneous big data coming from multiple sources (e.g. social media, sensors, wifi), b) new methods to quantify resilience innovating the Resilience Engineering domain and the Functional Resonance Analyses Method moving from a qualitative to a quantitative approach [J4, J8, J9, J10], c) the use of social media and big data to detect anomalies and predict events that can have an impact at system level. The work on Resilience allowed me to be invited at the European Commission as a panelist on Critical Infrastructure and at ASPEN Global Change Institute for a presentation.

The concept of resilience has been extended towards the cyber layer working on a novel holistic definition of Cyber Resilience and its application on IoT and Computer network [J4, C6, W1,W3,W4, W6]. In particular, the concept of self-

adaptation and bio-inspired methods for system recovery has been explored [C6, W3]. The evolution of the research paved the way to create the RESILTRON International Working Group on Self-adaptive Intelligent Socio-Technical System Digital Twin for Continuous Resilience Operationalization which I served as a coordinator. The scope of the group is to combine AI, Digital Twin, Simulation, and Decision Science at community level to support decision makers during emergencies (e.g. COVID) in taking evidence driven decisions. The scope is to simulate all the possible impacts of a chain of decisions/policies in face of achieving the intended level of resilience.

Trust

The 2nd topic of interest is Trust. Manifestations of trust are easy to recognize because we experience and rely on it every day, but at the same time also Trust is a multi-faced concept and its definition can be challenging since it embraces constructs of ethics, morals, emotions, values and natural attitudes and combines a variety of fields. According to Luhmann, trust is an effective mechanism of reducing complexity and risks. The research is addressing trust in several domains such as e-Science. In fact, the number of works made freely accessible on the Web by institutions joined to Open Archive Initiatives such as libraries, research institutions, scientific and cultural archives, is constantly growing. However, the low level of standardization and the missing of a digital resources and repositories certification authority prevents the quality control of the works and their trustable dissemination. In this respect the pluriannual research on automatic quality assessment of Open Archives [C18, C22], Digital Resource trustworthiness [C24, J13] and persistent identification [C25, C26, C27, C28], released the National Bibliography Number (NBN – RFC3188) [C25, J12, J14]. NBN is a persistent identifier linked to the national legal deposit for the Ministry of Cultural Heritage and interoperable with DOI and DataCite through a dedicated framework [C20, C21].

However, with the introduction of the **Distributed Ledger Technology** in general and the blockchain in particular, new possibilities to implement trust emerged. In particular, has been demonstrated that blockchain can replace and improve the level of trust offered by the current NBN system and can easily address the requirements of the new Big Science (large datasets dissemination, etc.) [J5]. Blockchain can be used also to address trust in Distributed Reputational Management Systems (DRMS) or in e-Voting systems [C1, C4]. In order to understand the main drivers and features that lead the adoption of a DLT (Ethereum, IOTA, Hyperledger, Bitcoin) in DRMS, a comprehensive survey has been carried out [J3]. On the other hand, a trustworthy E-Voting system has been designed and a prototyped using Hyperledger Fabric to show the feasibility of the approach [C1, C4]. Finally, the concept of trust supported by DLT has been applied in Machine Learning to entrust distributed datasets in federated learning approach [W2] as well as to secure evidences collected in IoT for forensic analysis [W5].

However, it is very common that the introduction of a new technology brings new vulnerabilities and issues.

The two main critical points identified are related to the privacy management and GDPR compliance in DLT and the smart contract trustworthiness. For the first point, experiments with Homomorphic encryption and the channel feature in Hyperledger Fabric are currently ongoing. The second point, is addressed exploring the use of formal methods and functional programming techniques to implement and verify Trustworthy Smart Contracts/Chaincode. The final aim is to introduce blockchain in embedded and safety-critical systems.

Performance

The 3rd topic of interest is represented by the human performance enhancement. In particular, the feasibility study on the use of advanced technologies such as head mounted Virtual Reality (VR) and haptic interfaces for a portable Control Room has been carried out [C2]. Another investigation related on human performance enhancement is represented by the assessment of low-cost open source wearable biometric sensors (e.g. Bitalino platform) to detect stress [C14]. The scope was to use multiple factors are EEG, ECG, Breath Skin Conductivity into a complex event processing to infer the level of stress during a cognitive intensive task (see project e-Kinesys and SensiRISK).

The idea of improving human performance using advanced wearable technologies is at the base of the Industrial PhD course organized by CISC project funded under the Marie Curie program, in which I am involved as a student supervisor.

1.2 Research positions

- **Assistant Professor (RTD-a)**
University of Campania "Vanvitelli" [04/08/2019 – Current]
City: Caserta (Italy)
Research in Distributed Ledger Technology and Resilience of Cyber-Physical Systems.
- **Visiting Research Fellow**
British Telecommunications Research and Innovation Centre [01/09/2019 – 31/12/2019]
City: Abu Dhabi (United Arab Emirates)
Analysis and design of blockchain-based solutions for Telcos
- **Visiting Research Fellow**
Khalifa University - Center of Cyber-Physical Systems [01/11/2018 – 06/02/2019]

City: Abu Dhabi (United Arab Emirates)

Blockchain-based Distributed Trust and Reputational Systems, Cyber-Physical system analysis, Analysis and design of blockchain-based solutions for Telcos

- **Senior Researcher**
Consorzio Interuniversitario per l'Informatica (CINI) [01/10/2018 – 31/12/2018]
City: Rome (Italy)
Big Data as a service, H2020 TOREADOR project
- **Researcher Fellow and Deputy Coordinator**
University of Florence - Information Engineering Dept. (DINFO), Distributed Systems and Internet Technology lab (DISIT) L.240/2010 [01/05/2015 – 30/06/2018]
City: Florence (Italy)
Coordinator of H2020 - RESOLUTE - Resilience management guidelines and Operationalization applied to Urban on Transport Environment, Resilience Engineering, Critical Infrastructure Protection, Decision Support System, Smart City
- **Research Fellow**
University of Florence – Statistics Informatics, Applications ‘G. Parenti’ Dept. (DISIA) L.240/2010 [01/05/2012 – 30/04/2015]
City: Florence (Italy)
Semantic aware- Statistical Information Systems, Open Data Value Network Analysis
- **Senior Researcher**
Centro Interuniversitario di Ricerca sul turismo (CIRT) [01/05/2011 – 30/04/2012]
City: Florence (Italy)
Statistical Information Systems, Open Data Value Network Analysis, Knowledge management.
- **Research Fellow**
University of Florence - Information Engineering Dept. (DINFO), Distributed Systems and Internet Technology lab (DISIT) [01/11/2007 – 31/10/2010]
City: Florence (Italy)
- **Senior Researcher & Project manager**
Fondazione Rinascimento Digitale - Fondazione Cassa di Risparmio di Firenze [01/09/2006 – 31/12/2014]
City: Florence (Italy)
Digital preservation, Persistent Identifiers, OAIS, Trusted Digital Repositories,

1.3 Other related work experiences

- **EC Project Reviewer**
European Commission [01/04/2018 – Current]
City: Luxembourg (Luxembourg)
Review and evaluation of research and innovation EC funded projects
- **President**
LOGOS Research & Innovation (RI) Association [01/06/2015 – Current]
City: Florence (Italy)
Integrated research on Security, Safety, Resilience and Reliability in Complex Cyber Physical Systems
- **Innovation Officer**
YourFuture s.r.l. [01/01/2015 – 30/04/2015]
City: Milan (Italy)
Big Data, Social CRM and AI based cybersecurity application scouting
- **ICT Research consultant**
PIN Prato - MoSIS Lab [01/01/2014 – 31/12/2018]
City: Prato (Italy)
Risk Ontology, Risk and resilience indicators, Statistical Information Systems, Open Data quality, Data Value Network Analysis, Risk and data communication, Satellite images processing.
 - Open Data portal EXPO 2015

- Open Spending - Bank of Italy - www.soldipubblici.it
- Automatic asbestos detection through ML and satellite images- City of Prato
- **Innovation Manager (certified MiSE)**
Mathema s.r.l. [01/01/2012 – 28/07/2019]
City: Florence (Italy)
Blockchain-based Dapp, Smart City, Smart Mobility, IoT, VR/AR, EU project management:
- **Coordinator**
Italian Ministry of Cultural Heritage - National Central Library of Florence [01/09/2009 – 30/06/2020]
City: Florence (Italy)
Coordination of Italian National Bibliography Number (NBN) service for National Legal Deposit of digital objects -www.depositolegale.it
- **Human Machine Interaction designer**
DigitasLBI - (former Iconmedialab) [01/09/2005 – 01/03/2006]
City: Milan (Italy)
Reach Internet Application (RIA) Design, evaluation re-design of UX and interaction for LG mobile and e-banking portal for Fineco.
- **Founder and CEO**
EBComm Design, [02/10/2004–31/08/2006]
City: Florence (Italy)
Software application design and development for assurance companies
- **Software engineer**
Powersoft s.r.l. [01/01/2000 – 01/10/2004]
City: Signa (Italy)
Automatic Tracking vehicles/fleets software application, real time Flexible Public Transport solutions for ATM (Milan), advanced GIS/satellite applications.

1.4 Training and certification

- **Cybersecurity Masterclass for Entrepreneurs**
International Air Transport Association (IATA) [30/06/2019]
- **Certificate in Hyperledger Fabric Network Administrator**
ALTOROS [27/03/2019 – 29/03/2019]
Address: Paolo Alto (United States)
Blockchain network and chaincode implementation
- **3rd DELOS International Summer School on Digital Library Technologies**
Address: San Miniato (IT) [04/06/2006–10/06/2006]
Digital preservation in digital libraries
- **Muscle-DELOS International Summer School on Multimedia Digital Libraries**
Address: San Vincenzo (IT) [12/06/2006–17/06/2006]
Multimedia Digital Libraries, Machine learning and cross-modal technologies for access and retrieval

1.5 Research Group participation

- **Founder/ Deputy** of RESILTRON Working Group on Self-adaptive Intelligent Socio-Technical System Digital Twin for Continuous Resilience Operationalization. The WG is focused on transparent AI, Self Adaptive systems, Digital Twin and advanced simulation to operationalize resilient decisions in socio-technical systems. The group includes University of Cambridge, Florence, o Milan, Campania, Tel Aviv, Zaragoza, Porthmouth, Peoloponnese, Malardalen and Linnaeus.
- **Deputy** of Working Group on Security and Resilience of European Integrated Mission Group for Security (IMG-S) this group is an industry-research collaboration on security and resilience on Complex Cyber Physical Social Systems (CCPSS) including research organizations and large industries active in the field of security and resilience such as Thales, Leonardo, RINA, BAE, etc.
- Autonomous Intelligent Cyber-defense Agent (AICA) International Working Group- 2020

- IEEE Standards - P2145 Blockchain Governance - Working Group -2020
- ESRA Technical Committee on Risk Assessment – 2017
- ESRA Technical Committee on Human Reliability – 2017
- Conference of Italian University Rectors (CRUI) National Working Group on Metadata for Italian Institutional Repository - Linee guida per la creazione e la gestione di metadati nei repository istituzionali - 2009
- Linux Foundation - Hyperledger Confluence Working Group -2019
- PersID European Initiative - <http://www.persid.org/> - supported by SURF Foundation (NL)

1.6 Funded Project responsibility

Deputy Coordinator/Principal Investigator

- PI- HELM Homomorphic encryption for Machine Learning (25K) – University of Campania VALERE program - 2020
- DC- H2020-DRS-2014 RESOLUTE RESilience management guidelines and Operationalization appLied to Urban Transport Environment (3.8M) - European Commission 2015 -2018
- PI- e-Kinesys (40K) - Fondazione Cassa di Risparmio Firenze 2016 – Implementation of a wearable low cost sensors system to track 9 axes body movements to enhance human performance during a given tasks.
- PI- SensiRISK(50K) - Fondazione Cassa di Risparmio Firenze 2015- Assessment of wearable low costs biometric sensors to quantify human eustress and distress.

WP Leader

- Cyber Trust – H2020-DS-SC7-2017 – European Commission 2018-2021
- H2020-ICT-2014-1 CloudSocket Business and IT-Cloud Alignment using a Smart Socket, - European Commission 2015-2018
- 2014-2016 EUROSTAR - SHARES Sharing Navigation Events from a Ship-as-a-sensor Network -European Commission
- APARSEN – FP7 ICT-2009.4.Alliance Permanent Access to the Records of Science – European Commission 2010-2013
- PersID Building a Persistent Identifiers Infrastructure- www.persid.org – SURF Foundation (NL), 2012

Task Leader

- H2020-ICT-2020-1- TERMINET nexT gEneRation sMART INterconnectEd IoT – European Commission 2020-2023
- H2020-SCC-2015 REPLICATE REnaissance of Places with Innovative Citizenship and TEchnology,– European Commission 2016-2021
- JamTODAY THE EUROPEAN GAME JAM LEARNING HUB, CIP-ICT-PSP-2013-7 -
- ECLAP CIP-ICT-PSP 2010-2013

Tutor/Board

- H2020-MSCA-ITN-2020 Collaborative Intelligence for Safety Critical systems (CISC) – 2020
- H2020 - DRS-14- SMART Resilience

1.7 Software contribution

- Design, coordination and implementation of **National Bibliography Number Service** - It is a central registry and a protected web service that interacts with dedicated plugins for EPrint (<https://github.com/depositolegale/eprints-nbn>), DSpace (<https://github.com/depositolegale/dspace-nbn>) and OJS (<https://github.com/depositolegale/ojs-nbn>) [J12, J14] to generate and assign a NBN to a digital resources. The software includes a back office for admin tasks. The software is up and running since 2012 at <http://www.depositolegale.it/resolver-nbn/> on Central National Library of Florence premises.

1.8 Editorial activity

- Editor - SN Applied Science - Topical Collection: Engineering - Cyber Security, Digital Forensics and Resilience - Springer - <https://www.springer.com/journal/42452/updates/17523992> - 01/01/2020
- Editorial Board - Frontiers in Big Data - Section: Medicine-and-public-health - <https://www.frontiersin.org/journals/big-data/sections/medicine-and-public-health#editorial-board> - 01/01/2018
- Editorial Board - Environmental Science and Decisions - Springer - <https://www.springer.com/journal/10669/editors> - 01/01/2018
- Guest Editor on MDPI Electronics - Special Issue on Security and Trust in Next Generation Cyber Physical Systems - 01/01/2020

- Guest Editor of International Journal of Knowledge and Learning (IJKL) - Towards Trust Persistent Identifier Infrastructures - 01/09/2014
<https://www.inderscience.com/info/inarticletoc.php?jcode=ijkl&year=2014&vol=9&issue=4>

1.9 Funded Project responsibility

Peer Reviewed Journal

- J1- U. Gentile, S. Marrone, R Nardone, E. Bellini Computer-Aided Security Assessment of Water Networks Monitoring Platforms, *International Journal of Critical Infrastructure Protection* (IJCIP), under press
- J2- M. Arafeh, P. Ceravolo, A. Mourad, E. Damiani, E. Bellini, Ontology Based Recommender System Using Social Network Data, *Future Generation Computer Systems* (FGCS), in press
- J3- Bellini, Y. Iraqui, E. Damiani - Blockchain-based Distributed Trust and Reputation Management Systems: A Survey - *IEEE Access*, 8, 21127-21151, 2020
- J4- E. Bellini, E. Gaitanidou, E. Bekiaris, P. Ferreira - European Resilience Management Guidelines for Critical Infrastructure operationalised for the Urban Transport System - *Env Science and Decisions Journal*, Springer, 2020
- J5 - E. Bellini - A blockchain-based Trusted Persistent Identifier system for Big Data in Science - *Foundations of Computing and Decision Sciences*, 2019
- J6 - A. Bellini, E. Bellini, M. Gherardelli, F. Pirri - Enhancing IoT Data Dependability through a Blockchain Mirror Model - *Future Internet*, 11 (5), 117
- J7 - F. Bagnoli, E. Bellini, E. Massaro (2019) Percolation and Internet Science - *Future Internet* 11 (2), 35
- J8 -E. Bellini, P. Nesi, L. Cocone (2019) A FRAM-driven approach for quantifying variability of a sociotechnical system - *IEEE Systems Journal* 14 (1), 1234-1244
- J9 - I. Linkov, L. Read, C. Fox-Lent, C. R. Allen, J. C. Arnott, E. Bellini, J. Coaffee, M.V Florine, K Hatfield, W. Hynes, A. Jovanovic, R.Kasperson, J. Katzenberger, P. W. Keys, J. H. Lambert, R. Moss, P. S.Murdoch, J. Palma-Oliveira, R. S. Pulwarty, D. Sands, J Taylor, E. A. Thomas, M. R. Tye, D. Woods, I. Hyde (2018) - Tiered approach to Resilience Assessment - *Risk Analysis* -<https://doi.org/10.1111/risa.12991>
- J10 - E. Bellini, P. Ceravolo, and P. Nesi. 2017. Quantify Resilience Enhancement of UTS through Exploiting Connected Community and Internet of Everything Emerging Technologies. *ACM Transaction on Internet Technol.* 18, 1, Article 7 (October 2017), 34 pages. 27 <https://doi.org/10.1145/3137572>
- J11- E. Bellini, C. Martelli, Flora Salvadori (2015) - Knowledge Management and Reuse in Tourism Destination Observatories - *Int. Journal on Knowledge and Learning* (IJKL) Vol 10, Issue 1 pp 1-15 -Inderscience - DOI: 10.1504/IJKL.2015.071042
- J12 - E. Bellini, C. Cirinnà, G. Bergamin, M. Messina, R. Messuti (2014) NBN:IT The Italian trusted persistent identifier infrastructure - *Int. Journal on Knowledge and Learning* (IJKL) - Vol: 9. pp 347-363 Inderscience
- J13 - E. Bellini, C. Cirinnà, M. Lunghi (2012) - Trust and Persistence for Internet Resources , Italian Journal of Library and Information Science. – Global Interoperability and Linked Data in Libraries workshop – *Italian Journal of Library, Archives, and Information Science. JLIS.it*
- J14 - E. Bellini, C. Cirinnà, M. Lunghi, C. Luddi, M. Messina, G. Bergamin, R. Messuti, G. Cordani, R. Delle Donne, F. Rossi, M. Vignocchi, S. Arabito, J Piščanc (2012): The National Bibliography Number Italia (NBN:IT) Project. A persistent identifier supporting national legal deposit for digital resources, *Italian Journal of Libraries and Information Science* JLIS.it 2012 NBN: urn:nbn:it:unifi-3866; DOI: 10.4403/jlis.it-4789

Peer Reviewed Conference

- C1 - Bellini E., Ceravolo P., Bellini A., Damiani E. (2020) Designing Process-Centric Blockchain-Based Architectures: A Case Study in e-voting as a Service. In: Ceravolo P., van Keulen M., Gómez-López M. (eds) Data-Driven Process Discovery and Analysis. SIMPDA 2018, SIMPDA 2019. Lecture Notes in Business Information Processing, vol 379. Springer, Cham. https://doi.org/10.1007/978-3-030-46633-6_1

- C2- E. Bellini, A. Bellini, F. Pirri, L. Cocone - Towards a Trusted Virtual Smart Cities Operation Center Using the Blockchain Mirror Model - *International Conference on Internet Science*, 283-291, 2020
- C3- P. Ceravolo, E. Bellini - Towards Configurable Composite Data Quality Assessment – *IEEE Conference on Business Informatics* 2019 CBI 1, 249-257
- C4 -E Bellini, P Ceravolo, E Damiani, Blockchain-based e-Vote-as-a-Service 2019 *IEEE 12th International Conference on Cloud Computing (CLOUD)*, 484-486
- C5 -P. Ceravolo, E. Bellini, - Assessing Strategies for Sampling Dynamic Social Networks – Springer Proceedings in Complexity - Research and Innovation Forum RII-Forum 2019 – Rome
- C6 -F. Bagnoli. E. Bellini, E Massaro - A self-organized method for computing the epidemic threshold in computer networks - Lecture Notes in Computer Science - Internet Science - INSCI 2018 St. Petersburg, Russia October 24-26, 2018
- C7 -E. Bellini, P. Ferreira, J. P. Lauteritz - The RESOLUTE Project: Guidelines for Resilience Control Room design in the Smart Cities - IEA 2018: Proceedings of the 20th Congress of the International Ergonomics Association (IEA 2018) pp 598-606 - Advances in Intelligent Systems and Computing book series (AISC, volume 819) Springer
- C8 -E. Bellini , P. Ferreira (2018) Managing interdependencies in critical infrastructures – a cornerstone for system resilience – European Safety and Reliability Conference (ESREL 2018)
- C9 - L Save, M Branlat, W Hynes, E Bellini, P Ferreira, JP Lauteritz, et.al., The Development of Resilience Management Guidelines to Protect Critical Infrastructures - Europe Congress of the International Ergonomics Association, 2018, 598-606
- C10 - Bellini E., Nesi P, Cocone L., Gaitanidou, E, Ferreira, P., Simoes A., Candelier (2016) A. Towards resilience operationalization in Urban Transport System: the RESOLUTE project approach – in Risk, reliability and Safety: Innovation and practice – Walls, Revie & Bedford (ed) European Safety and Reliability Conference (ESREL 2016) - CRC press.
- C11 -E. Bellini, P. Nesi, P. Bellini and M. Paolucci (2017) Big Data based Collaborative Resilience Management Decision Support System for Urban Transport Systems - CINI - Italian Conference on Smart City I-Cities 2017 <http://sisinflab.poliba.it/icities2017/>
- C12 - E. Bellini, C. Badii, P. Bellini, D. Cenni, A. Defino, P. Nesi, M. Paolucci (2017) Km4City: una soluzione aperta per erogare servizi Smart City - GARR Conference 2016, <http://www.eventi.garr.it/it/conf16> pp. 74-78.
- C13 - E. Bellini, E. Gaitanidou (2017) - European Resilience Management Guidelines for Critical Infrastructure operationalised for the Urban Transport System - 8th International Congress on Transportation Research (ICTR) in Greece – Thessaloniki
- C14 - E. Bellini, S. Benvenuti, C. Battistini (2017) - Towards a not obtrusive low cost biosystem to assess risk perception in workplace through stress detection - 1st International Symposium on Human Mental Workload –Dublin
- C15 - E. Bellini, P. Nesi, G. Pantaleo, A. Venturi (2016) Functional Resonance Analysis Method based Decision Support tool for Urban Transport System Resilience Management – - IEEE International Smart City Conference (ISC2 2016), Trento.
- C16 - E. Bellini, A. Bellini, C. Luddi, S. Naldini, C. Ghetti, and G. Bergamin (2013) ""Once Upon a Time": A Proof of Concept Augmented Reality Collaborative Mobile Application to Discover City Heritage," IEEE International Conference on Signal-Image Technology & Internet-Based Systems(SITIS), Kyoto, Japan Japan, 2014, pp. 358-363. doi:10.1109/SITIS.2013.65
- C17 - E. Bellini, C. Martelli (2013) - Using Value Network Analysis to support Data Driven Decision Making in Urban Planning. - IEEE International Conference on Signal-Image Technology & Internet-Based Systems(SITIS) 2013 – pp. 998-1003 Kyoto

C18 - E. Bellini, P. Nesi –(2013) Metadata Quality Assessment Tool for Open Access Cultural Heritage Institutional Repositories - in Information Technologies for Performing Arts, Media Access, and Entertainment - Lecture Notes in Computer Science -Springer Volume 7990, 2013, pp 90-103 DOI 10.1007/978-3-642-40050-6_9

C19 - E. Bellini , C. Martelli, (2012). The role of the semantic approach to complex statistical information system planning and management. *IEEE International Conference on Signal-Image Technology & Internet-Based Systems (SITIS)* 2012. 876-883 Naples.

C20 - E. Bellini, C. Cirinnà, M. Lunghi, B. Bazzanella, P. Bouquet, D. Giaretta and R. van Horik (2012), "Interoperability Framework for Persistent Identifier systems" *iPRES* 2012, Toronto

C21 - E. Bellini, Luddi, Chiara Cirinnà, Maurizio Lunghi, Achille Felicetti, Barbara Bazzanella, Paolo Bouquet (2012) Interoperability Knowledge Base for Persistent Identifiers Interoperability Framework. *IEEE International Conference on Signal-Image Technology & Internet-Based Systems(SITIS)*: 868-875

C22 - E. Bellini, M. A. Deussom, P. Nesi (2010) Assessing Open Archive OAI-PMH implementations - Software Engineering and Knowledge Engineering (SEKE) - *International Conference on Distributed Multimedia System (DMS)*, 2010 153-158 – Chicago

C23 - E. Bellini, I. Aversa (2009) “A Peer to Peer Multi-Agent Information System to support the impaired users mobility” AAATE 2009 - Assistive Technology from Adapted Equipment to Inclusive Environments – IOS Press DOI: 10.3233/978-1-60750-042-1-236

C24 - E. Bellini , P. Nesi, (2009) "A Trust P2P network for the Access to Open Archive resources", World Library and Information Congress: 75TH IFLA General Conference and Council, 23-27 August 2009, Milan, Italy

C25 - E. Bellini, R. Puccinelli., M. Spasiano (2009) “Persistent identifiers: jNBN, a JEE application for the management of a national NBN infrastructure” – GARR Conference – Napoli 2009

C26 - E. Bellini, C. Cirinnà, M. Lancia, M. Lunghi, R. Puccinelli, M. Saccone., B. Sebastiani, M. Spasiano (2009) – “Persistent Identifiers distributed system for digital libraries” <http://www.ifla.org/files/hq/papers/ifla75/193-lunghi-en.pdf> World Library and Information Congress: 75TH IFLA General Conference and Council, 23-27 August 2009, Milan, Italy.

C27 - E. Bellini et al (2008) “Persistent Identifiers distributed system for Cultural Heritage digital objects” http://www.bl.uk/ipres2008/presentations_day2/38_Lunghi.pdf *iPRES* 2008 British Library – The fifth International Conference on Preservation of Digital Objects- Conference Centre in St Pancras, London, on 29-30 September 2008.

C28 - E. Bellini, E. Damiani, M. Lunghi, C. Cirinnà, C. Fugazza (2008)– “Semantics-aware Resolution of Multi-part Persistent Identifiers” Lecture notes in computer science. Lecture notes in artificial intelligence ; 5288). - In: Emerging technologies and information systems for the knowledge society : first World summit on the knowledge society, WSKS 2008 : Athens, Greece, September 24-26, 2008 : proceedings / [a cura di] M.D. Lytras ... [et al.]. - Berlin : Springer, 2008. - ISBN 9783540877806. - pp. 413-22 www.springerlink.com/index/81k3714366135281.pdf

Peer Reviewed Workshops

W1 - E. Bellini, S. Marrone - Towards a novel conceptualization of Cyber Resilience, 2020 IEEE World Congress on Services (SERVICES)- *2nd Workshop on Cyber Security and Resilience in IoT – (accepted)*

W2- F. Marulli, S. Marrone, E. Bellini - A Security-Oriented Architecture for Federated Learning in Cloud Environments - 8-th International Workshop on Cloud Computing Project and Initiatives (CCPI-2020), in 34-th International Conference on Advanced Information Networking and Applications (AINA-2020)

W3- E. Bellini, F. Bagnoli, A. Ganin, I. Linkov - Cyber Resilience in IoT network resilience: Methodology and example of assessment through epidemic spreading approach - 2019 IEEE World Congress on Services (SERVICES)- *1st Workshop on Cyber Security and Resilience in IoT*

W4 -S. Shiaeles, N. Kolokotronis, E. Bellini, IoT vulnerability data crawling and analysis, 2019 IEEE World Congress on Services (SERVICES) 2642, *1st Workshop on Cyber Security and Resilience in IoT* - 78-83

W5 - S. Brotsis, N. Kolokotronis, K. Limniotis, S. Shiaeles, D. Kavallieros E. Bellini, C. Pavue Blockchain Solutions for Forensic Evidence Preservation in IoT Environments - IEEE SecSoft 2019

W6 - F. Bagnoli, E. Massaro, E. Bellini - Risk perception and epidemics in complex computer networks - *IEEE 5th Workshop on Complexity in Engineering COMPENG 2018 Florence*

W7 - E. Bellini and L. Cocone (2018) - Advanced Traffic Management Systems supporting resilient smart cities - Mobil.TUM Workshop - Transportation Research Procedia (Elsevier) 41, 556-558

W8 - E. Bellini, A. Candelieri, I. Giordani, F. Archetti (2016) - Resilience Management in Urban Transportation Systems –Enterprise Interoperability in the Digitized and Networked Factory of the Future i-ESA 16 Proceedings <http://www.iste.co.uk/book.php?id=1073>

W9 - E. Bellini, P. Ceravolo (2010) EPICA: Easy Persistent Identifier Common Architecture. Workshop IFIP on Semantic Web and Web Semantics (SWWS 2010) - OTM Workshop: 626-634 ON THE MOVE TO MEANINGFUL INTERNET SYSTEMS Lecture Notes in Computer Science, 2010, Volume 6428/2010, 626-634, DOI:10.1007/978-3-642-16961-8_87

Chapters

Ch1 - N. Kolokotronis, S. Shiaeles, E. Bellini, L. Charalambous, D. Kavallieros, O. Gkotsopoulou, C. Pavu, E. Bellini, G. Sargsyan - Cyber-Trust: Safeguarding the IoT Ecosystem From Sophisticated Cyber-Attacks - IOS NATO Science for Peace and Security Series

Ch2 - E. Bellini, P. Nesi, C. Martelli, E. Gaitanidou, F. Archetti, A. Candelieri, J.P. Leuteritz, P. Ferreira, L. Cocone (2017) - Building resilient and sustainable cities starting from the urban transport system – in Resilience Cities Series - Urban Resilience: Methodologies, Tools and Evaluation - Springer (in press)

Ch3 - E. Bellini and P. Nesi (2018) - Exploiting smart technologies to build Smart Resilient Cities – Routledge Book on sustainable and resilience infrastructure - Ed. Paolo Gardoni Univ. Illinois - Taylor & Francis

Ch4 - I. Häring, G. Sansavini, E. Bellini, N. Martyn, K. Kovalenko, M. Kitsak, G. Vogelbacher, R. Katharina, U. Bergerhausen, K. Barker, I. Linkov (2017) - Towards a Generic Resilience Management, Quantification and Development Process: General Definitions, Requirements, Methods, Techniques and Measures, and Case Studies. In: Linkov I., Palma-Oliveira J. (eds) Resilience and Risk. NATO Science for Peace and Security Series C: Environmental Security. Springer, Dordrecht https://doi.org/10.1007/978-94-024-1123-2_2

Other publications

O1 - L. Cocone, E. Bellini - Traffic Management Systems improving resilience in smart cities - ITS World Congress 2018 – Copenhagen

O2 - E. Bellini, L. Cocone - RESOLUTE approach for building resilient UTS (2017) - 12th Intelligent Transport Systems ITS European Congress – Strasbourg

O3 - E. Bellini, P. Nesi, P. Ferreira (2016) “Operationalize Data-driven Resilience in Urban Transport Systems - Resource Guide on resilience IRGC – EPFL 2016 DOI: 10.13140/RG.2.2.12786.09922, <https://www.irgc.org/wpcontent/uploads/2016/04/Bellini-Nesi-Ferreira-Operationalize-Data-driven-Resilience-in-Urban-Transport-Systems.pdf>

O4 - E. Bellini, M. Lunghi, C. Cirinnà. (2007) Persistent Identifiers for cultural heritage – Briefing Paper – Digital Preservation Europe project http://www.digitalpreservationeurope.eu/publications/briefs/persistent_identifiers.pdf

3 - TECHING ACTIVITIES AND TUTORING

3.1 International Master Teaching

- International Master in Risk Engineering and Management Steinbeis University Berlin - STI Advanced Risk Technologies – Stuttgart (Germany) [01/02/2017 – 31/12/2018]
Topics: Complex System, Big Data and Resilience

- 2nd level Master in Digital Libraries and archives, - University of Florence, Florence (Italy) [01/01/2012 – 31/12/2015
Topics: Information Systems, digital archives, XML and documentaries languages, persistent identifiers, Metadata (MAG, METS, PREMIS, DUBLIN-CORE, MPEG21,..)

3.2 University Courses Teaching

AA 2020-2021

- Distributed and Concurrent programming – Math and Physicist dept. (8CFU) University of Campania
OO programming, Java, Javabeans, JSP, Dynamic Web applications, Concurrency, Tomcat, Databases, Eclipse
- Informatics – Informatics and electronics Engineering Dept. (3CFU)- – University of Campania
Flowchart, Algorithms, recursion, C++ language
- Bioinformatics Lab – Scienze Biologiche (3CFU) - – University of Campania

AA 2019-2020

- Distributed and Concurrent programming – Math and Physicist dept. (8CFU) – University of Campania
OO programming, Java, Javabeans, JSP, Dynamic Web applications, Concurrency, Tomcat, Databases, Eclipse
- Elementi di Informatica – Informatics and electronics Engineering Dept. (3CFU) - – University of Campania

AA 2014-2015

- Humanistic Computing - Information Engineering Dept (6 CFU) - Information Engineering Dept. University of Florence
Databases, SQL, digital libraries, metadata,, persistent identifiers, digital preservation

AA 2013-2014

- Humanistic Computing - Information Engineering Dept (6 CFU)— Information Engineering Dept University of Florence
Databases, SQL, digital libraries, metadata,, persistent identifiers, digital peservation

AA 2012-2013

- Humanistic Computing - Information Engineering Dept (6CFU)— Informaton Engineering Dept University of Florence
Databases, SQL, digital libraries, metadata,, persistent identifiers, digital peservationn

AA 2009-2010

- Database and programming Languages (6CFU) – Information Engineering Dept. University of Florence
Information systems, SQL databases, PHP, HTML, dynamic web applications

AA 2008-2009

- Database and programming Languages (6CFU) – Information Engineering Dept University of Florence
Information systems, SQL databases, PHP, HTML, dynamic web applications

3.3 Thesis supervision

Thesis main supervisor:

- Katia Maratea : Render visibile l'arte invisibile: Valorizzazione e promozione in 3D delle collezioni nei depositi museali - Digital Humanities course - 2014 - University of Florence

Thesis co-supervisor:

- Title: IOTA in Smart Grid, 2020 – ongoing dip. Informatics and Electronics Engineering course. University of Campania
- Title: Applicazione blockchain a supporto delle Clearing House per i servizi di roaming nelle telecomunicazioni - 2019 ongoing - SesarLAB University of Milan
- Title: Analisi e realizzazione di ResilienceDS: uno strumento per l'analisi e la modellazione per le macro emergenze basato su risonanza funzionale - 2017 – Information Engineering course - University of Florence
- Title; Analisi e sviluppo di una soluzione e di una base di conoscenza semantica per la stima del danno potenziale da eventi naturali catastrofici - 2017 - Information Engineering course - University of Florence

4- INSTITUTIONAL ACTIVITES, ORGANIZATIONAL AND SERVICES

4.1 Memberships

- European Commission Community of User Initiative on critical infrastructure 2016
- European Virtual Institute for Integrated Risk Management – 2017
- ESRA - 2017
- IEEE - 2017
- IEEE Systems Council – 2017
- International Federation for Information Processing (IFIP) - 2018

- IEEE Blockchain Community- 2019
- IEEE Computer Society 2019
- Linux Foundation - Hyperledger TC – 2019
- European Commission - Mixed Reality for all initiative (XR4ALL) – 2019
- EU Blockchain Observatory & Forum – 2019

4.2 Conference/Workshops Organizations

Chair

- **General Chair/ Organiser** - 1st IEEE International Conference on Cyber Security and Resilience (CSR) - 2021 (Rodi) www-ieee-crs.org. The IEEE-CSR is co-sponsored by IEEE-MSc Society and supported by IEEE TC Homeland Security. It is managed by Emanuele Bellini in collaboration with prof. Stavros Shiaeles (University of Portsmouth and prof. Nicholas Kolokotronis (University of Peloponnese) that act as a general chairs and promoters. The Technical Program Chairs are represented by prof. Ernesto Damiani (University of Milan), Bogdan Ghita (University of Plymouth) and Fudong Li (University of Portsmouth) as Technical Program Chair.
- Program Chair – 12th International Network Conference 2020 - Springer
- Chair – IEEE 2st International Workshop on Cyber Security and Resilience in IoT - IEEE SERVICE 2020 (China)
- Chair - 25th IEEE Symposium on Computers and Communications (ISCC) - 2nd International Workshop on Machine Learning for Wireless Communications, 2020
- Program Chair - 24th IEEE Symposium on Computers and Communications (ISCC) - 1st International Workshop on Machine Learning for Wireless Communications (Barcelona) 2019
- Chair - IEEE 1st International Workshop on Cyber Security and Resilience in IoT (Milan) – IEEE SERVICE 2019
- Co-chair of Critical Infrastructure Resilience – EC-REA - Bruxelles (BE) - 2018 https://ec.europa.eu/info/news/rea-security-unit-shares-project-results-critical-infrastructure-resilience-2018-apr-18_en
- Panel Coordinator - European Commission - 11TH Meeting of the Community of Users on Secure, Safe and Resilient societies - Urban Critical Infrastructures - - Bruxelles (BE) - 2018 - <https://www.securityresearch-cou.eu/11th-Meeting-CoU>
- Co-chair of Aligning the resilience-related research efforts in the EU-DRS projects workshop - REA - EU Commission -2017
- Track Chair – Persistent Identifiers Interoperability Infrastructure Cultural Heritage On line 2012 – Florence (IT) - 2012
- Chair - IEEE SITIS 1st Workshop on Cultural Information System (CIS) - Kyoto (JP) -2010
- Chair- International Conference on Trust and Quality in CH digital library - Porto (PT)- 2013 – Springer
- Chair - AXMEDIS International Workshop and Digital Preservation Weaving Factory - Florence (IT) - 2008

Technical Program Committee

- IFIP/IEEE International Symposium on Integrated network Management 2021
- IEEE SERVICE conference 2020
- IEEE NetSoc 2nd International Workshop on Cyber-Security Threats, Trust and Privacy management in Software-defined and Virtualized Infrastructures (SecSoft 2020)
- IEEE/IFIP Network Operations and Management Symposium (NOMS) 2020
- 3rd International Symposium on Human Mental Workload - Rome, 2019 H-WORKLOAD 2019
- 6th International Conference on INTERNET SCIENCE(INSICI2019)
- IEEE NetSoc 2nd International Workshop on Cyber-Security Threats, Trust and Privacy management in Software-defined and Virtualized Infrastructures (SecSoft 2019)
- MICRADS'19 The 2018 Multidisciplinary International Conference of Research Applied to Defense and Security -Salinas Ecuador, 2019
- 2nd International Symposium on Human Mental Workload - Berlin, 2018 - Springer
- MICRADS'18 The 2018 Multidisciplinary International Conference of Research Applied to Defense and Security -Salinas Ecuador, 2018.
- 1st International Symposium on Human Mental Workload -Dublin – 2017 - springer
- IEEE SITIS Conference Kyoto 2013
- 2nd International Conference, ECLAP Porto, (PT) – 2013 - Springer
- 1st International Conference, ECLAP – Bruxelles (BE) – 2011-Spinger

Invited presentations

- European Commission-11th Meeting Community of User on Secure, Safe and Resilient Societies – Bruxelles (BE) -2018 <https://www.securityresearch-cou.eu/11th-Meeting-CoU-07/06/2018>
- 6th China-Europe Risk Forum - Risk and Resilience Symposium - Beijing – PRC - 28/11/2017
- European Cooperation Network on Critical Infrastructure Protection conference – Rome 2016
- 1st International Workshop on Resilience - Turin (IT) & ISPRA - <http://www.workshop-torino2016.resiltronics.org/index.html> 20/09/2016
- Risk and Resilience in the Face of Global Change – Aspen Global Change Institute (AGCI) - Aspen (USA) - <https://www.agci.org/event/15s5> -01/12/2015

4.3 Standardization activities

- CEN/CLC Focus Group on Blockchain and Distributed Ledger Technologies- BDLT – 2019
- IEEE Standards P2145 WG - Blockchain / DLT Governance Standards - 2019
- CEN TC 88 on Resilience Information Portal – 2017
- IETF WG on 3188 RFC

4.4 Third Mission

- Neighbor watching meeting – Big Data and European funding opportunities for Neighbor watching initiative Mestre (IT) - 2020
- Climathon in Florence - 2017
- Training kids with "Goose in the riskland" game for Chiavi della citta' project at primary schools (more then **250** kids trained) - 2016
- Children Festival in Florence - "Goose in the Riskland" presentation - 2016
- Launch of the RESOLUTE/50th Flood initiative at Palazzo Vecchio - 2016
- Citizen-Science café - Presentation of Resolute for City Resilience to citizens - Municipal Library Oblate, Florence Italy - 2016
- Mugnone Civil Protection Exercise - A comprehensive Civil Protection exercise organized by the Municipality of Florence in the Romito Area, to evaluate city resilience to flood - 2016
- Presentation of Mugnone Civil Protection Exercise to citizens: Public town meeting in order to inform the district inhabitants of the coming Civil Protection Exercise, within the RESOLUTE project
- “Cascine Park” initiative for citizens. A series of urban, economic, cultural, scientific provisions and interventions, have been put under public discussion, in a town hall meeting – 2016

5-EDUCATION AND ADDITIONAL INFORMATIONS

5.1 Education

- Doctorate in Telematics and Information Society
University of Florence [01/11/2008 – 30/11/2012]
Address: Florence (Italy)
Data Quality, Distributed Computing, Data Analysis, Complex digital objects, knowledge management
- M.Sc. In Communication Science *cum laude*
University of Siena [01/09/2001 – 11/04/2006]
Address: Siena (Italy)
Human Computer Interaction, Human Machine Interface, Human Factors, User Centered Design, Distributed Cognition, Neuroergonomy, Communication Theory, Human reliability, Multimedia.
- High school degree in Informatics
Istituto Tecnico Industriale Statale "A. Meucci", Florence (Italy)
Address: Florene (Italy)
Informatics and Systems

5.2 Language

- Mother tongue: Italian
- English
LISTENING: C1 READING: C1 UNDERSTANDING: C1 SPOKEN PRODUCTION: C1 SPOKEN INTERACTION: C1
- Spanish
LISTENING: A1 READING: A2 UNDERSTANDING: A2 SPOKEN PRODUCTION: A1 SPOKEN INTERACTION: A1

5.3 Communication

- excellent interpersonal communication skill gained through teaching activities (university courses), communication science studies, projects and team coordination and business/commercial activities.
- excellent contact skill with children gained through game-based lessons at Florence primary schools for resilience behaviors awareness program.

5.4 Job-related skills

- Design Thinking and Human-Centered Design
- Distributed Systems
- Programming languages (C,C++, Java, Perl, PHP, Javascript, VB, GO)
- DLT: Hyperledger family
- Satellite images processing (ArcGIS, QGIS, ENVI)
- Data Analysis (R, Matlab)
- Complex systems analysis through Functional Resonance Analysis Method
- Requirements elicitation and engineering
- SOA, SQL/NoSQL, GRID programming
- Knowledge management: D2R, SKOS, OWL, XML/RDF, Triple stores.
- Network analysis: SOCNETH, CYTOSCAPE
- Data/Content management: CKAN, Dspace, ePrint
- Protocols/packaging: OAI-PMH, OAI-ORE, MPEG21, METS, XFDU
- Design of RIA interactive user interfaces, Human Factors and User Experience design (Design Thinking, Activity Theory)
- Multimedia Software: Photoshop, Sony Vegas,

5.5 Organization and Management

- Knowledge management and Semantics processing
- Project management (agile, waterfall)
- Team-leading and coordination
- Capacity of setting up the condition for cross fertilization of ideas and competencies (OI 2.0)
- Goal-oriented attitude and pragmatic problem solving
- Conflict prevention, management and resolution through dialogue and common understanding

5.6 Other skills and interests

- Sailing boat license for boat max 30 mt. and within 15miles from the coast
- Expert skier and member of Italian Alpine Club (CAI)
- Football player
- Deejay amateur
- Chess
- Motorcyclist

5.7 Honors and awards

- Official Special Thanks received by vice-Major of Florence for the ideation and presentation to several Florentine primary schools of the "*Goose in the Riskland*" game for enhancing the kids awareness in good behaviors to be resilient against critical events.