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*Welcome to
Bologna!*



*Scuola di
Ingegneria e
Architettura*

Via Risorgimento 2

40136 Bologna

Welcome message from the IEEE RTSI 2016 General Chairs

Dear ladies and gentlemen, welcome to the Second Edition of the International Forum on Research and Technologies for Society and Industry (**RTSI**) that is taking place in Bologna, Italy, from Wednesday September 7th until Friday September 9th, 2016.

The theme of this edition of the forum is “**Technologies for smarter societies.**” In fact, research and innovation are the keys for a structural change towards a more sustainable economy able to create new job opportunities, as well as to fuel productivity and growth. Countries investing in research and innovation are more resilient to the economic crisis, react promptly to the great societal challenges of our time, and perform better in the strong global competition that continuously shapes economies and societies.

Grounded on these evidences, the core purpose of this forum is to foster technological innovation and excellence in the fields of electrical, electronic, and information science and engineering, to promote the transition towards a vibrant innovation-based society.

Specifically, the main purposes of the event are:

- to promote and to strengthen *partnerships and cooperation between academia and industry*;
- to increase the *public's understanding and awareness* of how engineering and technology can positively affect quality of life;
- to promote *discussion between research community and government bodies* about effective and successful research policies;

- to disseminate *advancements, discoveries* and *applications*;
- to discuss *ideas* and to promote *cooperation between researchers* working in different research areas.

RTSI includes panels, technical sessions, tutorials, and exhibitions, as reported in detail in the technical program. RTSI is a yearly periodic reference event of the IEEE Italy Section and a scientific meeting about the advancement of the state-of-the-art in electrical, electronic, and information science and engineering. We are proud that some national academic societies in these fields meet during the forum as co-located events.

We would like to give a warm welcome to all the participant to RTSI and look forward to meeting you over the three days of the forum.

Enjoy RTSI 2016 @Bologna!

Warmest Regards,

A handwritten signature in black ink, reading "E. Cardelli".

Prof. Ermanno Cardelli

General and IEEE Italy Section Chair

A handwritten signature in black ink, reading "Paolo Ciancarini".

Prof. Paolo Ciancarini

General and GRIN Chair

Welcome message from the IEEE RTSI 2016 Program Chair

The Technical Program of the second edition of **RTSI** is very rich: it includes 15 technical sessions with 103 contributed papers and 18 invited talks and keynote speakers, five tutorials on very hot topics and 3 panels in which industries and universities debate on topics like: Smart Mobility and Logistic, Smarter city and Health Care, Industry 4.0.

This year, for the first time a Young Professional Event has been organized. All participants in RTSI 2016 are invited to vote the best demonstrator based on an originality, execution and illustration of the core research idea. An evaluation committee will scrutinize the voting forms. The winner will receive a prize sponsored by IEEE Italy Section and the best ten will be awarded with designing kits offered by STM.

Other two new initiatives of this second edition are:

- **the IEEE Student Branch Meeting** organized by the IEEE Italy Section SB coordinator with the objective to bring together the Italian Student Branches sharing their best practices and also offering the students the opportunity to follow an international and interdisciplinary conference.
- **the first Action for Industries Meeting of IEEE Italy Section** with the objective to inform all participants of the initiatives that IEEE Region 8 (Europe, Africa and Middle East) and IEEE Italy Section are

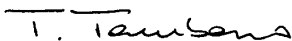
promoting in favor of industries and discuss with participants new ideas and proposals of common interest.

I would like to thank all technical sponsors for their support and promotion; the session chairs for their essential work of organization and management of the technical sessions and the team of international reviewers who have assured a high level of papers that will be published on IEEExplore Digital Library. Thanks are also due to the tutorial, panels and YP Event chairs for their valuable work.

Last but not least, a special recognition deserves the organizing team of Bologna University whose effective contribution and enthusiastic work assured the realization of this event.

I hope that you all can enjoy RTSI 2016.

With my best regards



Dr. Tiziana Tambosso

Technical Program Chair and
IEEE Italy Section Vice-Chair

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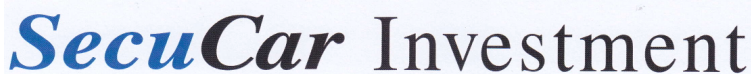
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Technical Sponsors

IEEE RTSI 2016 acknowledges the following technical sponsorships



PROGRAM GRID

DAY 1 – September 7th, Wednesday

Time	Aula Magna	Room 1	Room 2	Room 3	Room 4
10:00 10:45	Welcome Session				
10:45 12:15	YP	Technical Session Cultural Heritage, Smart City, and Participatory Process (Chairs: Fabrizio Apollonio, Francesca Rizzo)	Technical Session Nanoelectronics and Nanoelectromagnetics for a Smarter Technology in Everyday Life (Chairs: Stefano Bellucci, Antonio Maffucci, Carmelita Ruggiero)	Technical Session New Frontiers in Adaptive Computing Systems (Chair: Marco Santambrogio)	Tutorial 1 IBM Advanced Analytics: How to Leverage on Tacit Knowledge to Empower Clinical Decision Making (Marco Monti)
12:15 12:45		YP Event Time			
12:45 14:00		Lunch			
14:00 16:00		Panel 1 Smarter City and Health Care (Chair: Paolo Maresca)			

16:00 16:30	Coffee Break				
16:30 18:30	YP	Panel 2			
		Digital Community: Smart Mobility and Logistic (Chairs: Giambattista Gruosso, Alberto Reatti)			
19:00 20:00		Welcome Reception			

PROGRAM GRID

DAY 2 – September 8th, Thursday

Time	Aula Magna	Room 1	Room 2	Room 3	Room 4	Room 5
08:30 10:15		Technical Session 5G Communications: from the Radio Access to the Transport Network (Chairs: Walter Cerroni, Daniele Tarchi)	Technical Session (I) Computational Intelligence Applications in Health and Smart Cities (Chairs: Sergio Cerutti, Roberto Tagliaferri)	Technical Session (I) Smart Grids and Smart Mobility for Smart Cities (Chairs: Luciano Bononi, Alberto Borghetti, Carlo Alberto Nucci)	Tutorial 2 Modern Reliability and Maintenance Engineering for Modern Industry (Piero Baraldi, Francesco Di Maio, Enrico Zio)	
10:15 10:45		Coffee Break				
10:45 12:30	EX		Technical Session (II) Computational Intelligence Applications in Health and Smart Cities (Chairs: Sergio Cerutti, Roberto Tagliaferri)	Technical Session (II) Smart Grids and Smart Mobility for Smart Cities (Chairs: Luciano Bononi, Alberto Borghetti, Carlo Alberto Nucci)	Tutorial 3 1. Smart Manufacturing vs Smart Innovation: what should come first? (Sergio Terzi)	

							2. The (Smart) Cyber-physical Revolution: Challenges and Opportunities (Manuel Roveri)		
12:30 13:00			Award Ceremony						
13:00 14:15	Lunch								
14:15 16:15	EX	Panel 3 Emerging Technologies, Challenges and Opportunities for Industry 4.0 (Chairs: Maurizio Fiasché, Danilo Pau)							
16:15 16:45		Coffee Break							
16:45 18:30			Technical Session Wireless Power Transfer: modelling and applications (Chairs: Marco Raugi, Sami Barmada)	Technical Session Biologically inspired models for innovation in Medicine (Chairs: Sergio Cerutti, Mauro Ursino)		Tutorial 4 Decentralized Computing in Smart Grids by Self-Organizing Sensor (Alberto Vaccaro)	IEEE Italy Section - Action for Industry Meeting		
20:00	Social Dinner								

PROGRAM GRID

DAY 3 – September 9th, Friday

Time	Aula Magna	Room 1	Room 2	Room 3	Room 4	Room 6
08:30 10:15	EX		Technical Session (I) Smart Emerging Technologies for Industry 4.0 (Chairs: Maurizio Fiasché, Marco Taisch)	Technical Session (I) Enabling technologies for measurement challenges in dual-use scenarios (Chairs: L. Angrisani, D. Accardo, B. Tellini)		
10:15 10:45	Coffee Break					
10:45 11:15	Exhibition Time					
11:15 13:00	EX	Technical Session Biorobotics and Rehabilitation (Chairs: Anna Bianchi, Silvestro Micera)	Technical Session (II) Smart Emerging Technologies for Industry 4.0 (Chairs: Maurizio Fiasché, Marco Taisch)	Technical Session (II) Enabling technologies for measurement challenges in dual-use scenarios (Chairs: L. Angrisani, D. Accardo, B. Tellini)	Tutorial 5 Big Data 2.0 Processing Systems: Technologies, Challenges (Sherif Sakr)	

13:00 14:15	Lunch time							
14:15 16:00	EX		Technical Session Security and Privacy in Emergency Scenarios (Chair: Sara Foresti)	Technical Session (III) Smart Emerging Technologies for Industry 4.0 (Chairs: Maurizio Fiasché, Marco Taisch)	Technical Session (I) New Materials and applications in magnetics (Chair: Antonio Faba)	Technical Session (I) IoT and Big Data: Efficient Management of Sensor/Cloud Integration (Chairs: Paolo Bellavista, Antonio Corradi)	IEEE Student Branch Meeting	
16:00 16:30		Coffee Break						
16:30 18:15			Technical Session Algorithms, techniques, and architectures for Big-Data-Analytics-as-a-Service (Chairs: Ernesto Damiani, Claudio Ardagna)		Technical Session (II) New Materials and applications in magnetics (Chair: Antonio Faba)	Technical Session (II) IoT and Big Data: Efficient Management of Sensor/Cloud Integration (Chairs: Paolo Bellavista, Antonio Corradi)		
18:15 18:30		Closing Remarks						

RTSI 2016 Technical Program

DAY 1 - September 7th, Wednesday

10:00-10:45

Welcome Session

Room: Aula Magna

10:45-12:15

Technical Session: *Cultural Heritage, Smart City, and Participatory Process*
(Chairs: Fabrizio I. Apollonio, Francesca Rizzo)

Room: Room 1

INVITED SPEAKER

- **Designing tangible interactions for participation and dialogue in heritage**
Luigina Ciolfi (Sheffield Hallam University, Sheffield, UK)

REGULAR PAPERS

- **A framework to support active management and communication of Cultural Objects**
Marco Gaiani and Fabrizio Apollonio (University of Bologna, Italy);
Ettore Toscano (STMicroelectronics, Italy)
- **Virtual museums and social networks**
Sofia Pescarin and Ivana Cerato (CNR, Italy); Paola Romi
(Archeoblogger, Italy)
- **Bridging the experiential gap in cultural visits with computer vision**
Alberto Del Bimbo (University of Florence, Italy); Rita Cucchiara
(University of Modena and Reggio Emilia, Italy)
- **Co-creating intangible cultural heritage by crowdmapping: the case of mappi[na]**
Grazia Concilio (Politecnico di Milano, Italy); Ilaria Vitellio
(CityOpenSource, Naples, Italy)

10:45-12:15

Technical Session: *Nanoelectronics and nanoelectromagnetics for a smarter technology in everyday life*

(Chairs: Stefano Bellucci, Antonio Maffucci, Carmelina Ruggiero)

Room: Room 2

INVITED SPEAKER

- **Nanopackaging for a Smarter Life**
James E. Morris (Portland State University, USA)

REGULAR PAPERS

- **Biochar-Polymer composites and thin films: characterization and applications**
Simone Quaranta (University of Ontario, Canada); Patrizia Savi, Mauro Giorcelli, Aamer Khan and Alberto Tagliaferro (Politecnico di Torino, Italy); Charles Jia (University of Toronto, Canada)
- **Resonant nanoplasmonic Platform for fast and early diagnosis of cardiovascular diseases**
Francesco Dell'Olio, Maripina De Palo, Donato Conteduca, Caterina Ciminelli and Mario Nicola Armenise (Politecnico di Bari, Italy)
- **A low-cost gas sensor based on a self-assembled graphene nanoplatelets contact**
Federico Micciulla, Antonino Cataldo and Stefano Bellucci (INFN-LNF, Italy); Antonio Maffucci (University of Cassino and Southern Lazio; National Institute of Nuclear Physics, INFN-LNF, Italy)
- **Ab initio modelling of dielectric screening and plasmon resonances in extrinsic silicene**
Cristian Vacacela-Gomez (University of Calabria, Italy); Michele Pisarra (Universidad Autónoma de Madrid, Spain); Mario Gravina (University of Calabria, Italy); Stefano Bellucci (Istituto Nazionale di Fisica Nucleare, Italy); Antonello Sindona (University of Calabria; Istituto Nazionale di Fisica Nucleare (INFN))

10:45-12:15

Technical Session: *New Frontiers in Adaptive Computing Systems*

(Chair: Marco Santambrogio)

Room: Room 3

INVITED SPEAKER

- **Dynamic circuit specialisation as a step towards more efficient hardware design of the future**
Dirk Stroobandt (Ghent University Belgium)

REGULAR PAPERS

- **Using just-in-time code generation for transparent resource management in Heterogeneous Systems**
Gianluca C. Durelli and Marco Santambrogio (Politecnico di Milano, Italy); Gavin Vaz, Christian Plessl and Heinrich Riebler (Paderborn University, Germany); Ettore M. G. Trainiti, Emanuele Del Sozzo and Cristiana Bolchini (Politecnico di Milano, Italy)
- **Design and validation of multi-core embedded systems under time-to-prototype and high performance constraints**
Marco Faccio, Fabio Federici, Giuseppe Marini, Vittoriano Muttillio, Luigi Pomante and Giacomo Valente (University of L'Aquila, Italy)
- **A service diagnosis and adaptation scheme in service-oriented IoT**
Xuesong Peng and Barbara Prnici (Politecnico di Milano, Italy)
- **An application of semantic technologies to self adaptations**
Francesco Poggi, Davide Rossi, Paolo Ciancarini and Luca Bompani (University of Bologna, Italy)
- **Reconfigurable EKF for 2D SLAM**
Sindhu Radhakrishnan and Wail Gueaieb (University of Ottawa, Canada)

10:45-12:15

Tutorial 1: *IBM Advanced Analytics: How to Leverage on Tacit Knowledge to Empower Clinical Decision Making*

(Marco Monti, IBM)

Room: Room 4

12:15-12:45

Young Professional Event Time

12:45-14:00

Lunch time

14:00-16:00

Panel 1: Smarter City and Health Care

(Chair: Paolo Maresca)

Room: Aula Magna

Participants:

- Marco Monti (IBM Italia)
 - Andrea Molinari (University of Trento)
 - Gabriella Tognola (IEIIT-CNR)
 - Natalia Pianesi (Direttore Divisione Consulenza ENGINEERING)
 - Gianpiero Camilli (Financing Initiatives, NoemaLife SpA)
 - Agusti Solanas (Roviri I Virgili University, Spain)
 - AnnaMaria Chiasera (GPI)
 - Lorenzo Verna (CRG-Tykli srl)
-

16:00-16:30

Coffee break

16:30-18:30**Panel 2:** Digital Community: Smart Mobility and Logistic

(Chairs: Giambattista Gruosso, Alberto Reatti)

Room: Aula Magna

Participants:

- Raffaele Vincenti, "Smart Mobility Networks in the City of the Future"
- Augusto Leonida (BIP - Best Idea & Projects) - "ZED - Zero Emissions Distribution: practical experiences in Roma and Pescara (www.logisticazed.it)"
- Massimo Marciani (President, FIT Consulting)- "ITS as enabling factor for new governance models in urban logistics"
- Marina Melissari (SGL Relogistics) - "Electric Mobility: Zero Emission WEEE Collecting in urban centres"
- Roberto Zollo (Theorematica) - "Territorial Network Support System"
- Marco Aimo Boot (CNH Industrial-IVECO) - "The Electric Urban Mobilty: the Iveco prospective"
- Gabriella Favuzza (Groupe Renault) - "Renault and the electric mobility: innovation for a sustainable and modern mobility"
- Giorgio Gabba (Protoscar) - "Fast Charging infrastructure for Logistic"

19:00-20:00

Welcome reception

RTSI 2016 Technical Program

DAY 2 - September 8th, Thursday

08:30-10:15

Technical Session: *5G Communications: from the Radio Access to the Transport Network*

(Chairs: Walter Cerroni, Daniele Tarchi)

Room: Room 1

REGULAR PAPERS

- **A mobile phone-sensing system for emergency management: the SENSE-ME platform**
Gianluca Aloï (University of Calabria, Italy); Marco Di Felice (University of Bologna, Italy); Giuseppe Ruggeri (University of Reggio Calabria, Italy); Stefano Savazzi (CNR; Politecnico di Milano, Italy)
- **Comparing application layer protocols for the Internet of Things via experimentation**
Stefan Mijovic, Erion Shehu and Chiara Buratti (University of Bologna, Italy)
- **Accurate omnidirectional multi-camera embedded structure from motion**
Marco Paracchini (Politecnico di Milano, Italy); Mirko Falchetto and Danilo Pietro Pau (STMicroelectronics, Italy); Marco Marcon (Politecnico di Milano, Italy); Emanuele Plebani (STMicroelectronics, Italy); Angelo Schepis (Politecnico di Milano, Italy)
- **Joint routing and scheduling for centralised wireless sensor networks**
Chiara Buratti and Roberto Verdone (University of Bologna, Italy)
- **Digital predistortion technique for the compensation of nonlinear effects in radio over fiber links**
Muhammad Usman Hadi, Filippo Fuochi, Jacopo Nanni, Pier Andrea Traverso and Giovanni Tartarini (University of Bologna, Italy)

- **Comparison among different indexes to characterize the wireless channel conditions within a reverberating chamber**

Antonio Sorrentino, Giuseppe Ferrara, Ferdinando Nunziata, Maurizio Migliaccio and Sergio Cappa (University of Naples Parthenope, Italy)

08:30-10:15

Technical Session: (I) *Computational Intelligence Applications in Health and Smart Cities*

(Chairs: Sergio Cerutti, Roberto Tagliaferri)

Room: Room 2

REGULAR PAPERS

- **Healthcare system: a digital green filter for smart health**
S. Lestizia Digiovanni, Maria Rizzi and Cataldo Guaragnella (Politecnico di Bari, Italy); Maddalena Falagario (University Aldo Moro of Bari, Italy)
- **Physical activity classification using body-worn inertial sensors in a multi-sensor setup**
Muhammad Awaiz, Luca Palmerini and Lorenzo Chiari (University of Bologna, Italy)
- **Methodologies, tools and technologies for location-aware AAL**
Luigi Pomante and Marco Santic (University of L'Aquila, Italy)
- **A problem-driven approach for building a bioinformatics graphDB**
Antonino Fiannaca and Massimo La Rosa (National Research Council of Italy, Italy); Laura La Paglia (CNR-ICAR, Italy); Riccardo Rizzo (ICAR-CNR UOS Palermo, Italy); Antonio Messina (CNR, Italy); Alfonso Urso (Icar-CNR, Italy)
- **Effectiveness of projection techniques in genomic data analysis**
Paola Galdi and Angela Serra (University of Salerno, Italy); Dario Greco (University of Helsinki, Finland); Roberto Tagliaferri (University of Salerno, Italy)

INVITED SPEAKER

- **Computational Intelligence, Precision Medicine and Comorbidity**
Pietro Liò (University of Cambridge, UK)

08:30-10:15

Technical Session: (I) *Smart Grids and Smart Mobility for Smart Cities*

(Chairs: Luciano Bononi, Alberto Borghetti, Carlo Alberto Nucci)

Room: Room 3

INVITED SPEAKER

- **Efficient integration of electric vehicles in distribution networks with high share of renewable energy sources**
Nikos Hatziaargyriou (NTUA, CEO of HEDNO)
Evangelos Karfopoulos (NTUA)

REGULAR PAPERS

- **Dynamic optimisation of price arbitrage techniques**
Massimo Ceraolo, Giovanni Lutzemberger and Davide Poli (University of Pisa, Italy); Vitalij Ruge and Bernhard Bachmann (Bielefeld University of Applied Sciences, Germany)
- **Energy-efficient battery charging in electric vehicles with solar Panels**
Michelangelo Grosso and Davide Lena (ST-PoliTO S. c. ar. l, Italy); Alberto Bocca and Alberto Macii (Politecnico di Torino, Italy); Salvatore Rinaudo (ST Microelectronics, Italy)
- **The Impact of regulated electric fleets on the power grid: the car sharing case**
Elisabetta Biondi, Chiara Boldrini and Raffaele Bruno (IIT-CNR, Italy)
- **Modeling daily electrical demand in presence of PHEVs in smart grids with supervised learning**
Marco Pellegrini (LIF Srl, Italy); Farshad Rassaei (National University of Singapore, Singapore)

08:30-10:15

Tutorial 2: *Modern Reliability and Maintenance Engineering for Modern Industry*

(Chairs: Piero Baraldi, Francesco Di Maio, Enrico Zio)

Room: Room 4

10:15-10:45

Coffee break

10:45-12:30

Technical Session: (II) *Computational Intelligence Applications in Health and Smart Cities*

(Chairs: Sergio Cerutti, Roberto Tagliaferri)

Room: Room 2

REGULAR PAPERS

- **Sink state analysis in multi-tenant smart buildings**
Andrea Piscitello, Alessandro Nacci, Vincenzo Rana, Marco Santambrogio and Donatella Sciuto (Politecnico di Milano, Italy)
- **Layered ensemble model for short-term traffic flow forecasting with outlier detection**
Amr Rashad Ahmed Abdullatif, Francesco Masulli and Stefano Rovetta (University of Genoa, Italy)
- **Detecting anomalies in Twitter stream for public security issues**
Flora Amato, Giovanni Cozzolino, Antonino Mazzeo and Sara Romano (University of Naples Federico II, Italy)
- **Association between smartphone-based activity monitoring and traditional clinical assessment tools in community-dwelling older people**
Alice Coni (University of Bologna, Italy)
- **Deep convolutional neural networks for classification of mild cognitive impaired and Alzheimer's disease patients from scalp EEG recordings**
Francesco Morabito, Maurizio Campolo and Nadia Mammone (University Mediterranea of Reggio Calabria, Italy); Alessia Bramanti (IRCCS, Italy); Cosimo Ieracitano (University Mediterranea of Reggio Calabria, Italy)

INVITED SPEAKER

- **The quest for a bionic hand: recent achievements and future perspectives**
Silvestro Micera (Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland; Scuola Superiore Sant'Anna, Pisa, Italy)

10:45-12:30

Technical Session: (II) *Smart Grids and Smart Mobility for Smart Cities*
(Chairs: Luciano Bononi, Alberto Borghetti, Carlo Alberto Nucci)

Room: Room 3

INVITED SPEAKER

- **A system view in-situ demonstration project for urban Smartgrids**
Nouredine Hadjsaid (Grenoble Institute of Technology, France)

REGULAR PAPERS

- **A simple circuit model for the islanding transition of microgrids**
Alessia Cagnano, Enrico De Tuglie and Michele Trovato (Politecnico di Bari, Italy); Luca Cicognani (ABB SpA, Italy); Vito Vona (Automation Service, Italy)
- **From brown coal to a rural energy landscape - Orchestration of storage and electric mobility to foster decentralized energy management**
Alfredo D'Elia, Marco Di Felice and Luca Bedogni (University of Bologna, Italy); Mathias Duckheim and Randolph Mock (Siemens AG, Germany); Tullio Salmon Cinotti (University of Bologna, Italy)
- **A co-Simulation platform for the analysis of the impact of electromobility scenarios on the urban distribution network**
Federico Montori, Alberto Borghetti and Fabio Napolitano (University of Bologna, Italy)
- **Energy storage sizing for voltage control in LV networks under uncertainty on PV generation**
Martina Bucciarelli, Antonio Giannitrapani, Simone Paoletti, Donato Zarrilli and Antonio Vicino (University of Siena, Italy)

10:45-12:30

Tutorial 3: Part I. *Smart Manufacturing vs Smart Innovation: what should come first?* (Sergio Terzi, Politecnico di Milano)

Part II. *The (Smart) Cyber-physical Revolution: Challenges and Opportunities* (Manuel Roveri, Politecnico di Milano)

Room: Room 4

12:30-13:00

Award Ceremony

Room: Aula Magna

13:00-14:15

Lunch time

14:15-16:15

Panel 3: *Emerging Technologies, Challenges and Opportunities for Industry 4.0* (Chairs: Maurizio Fiasché, Danilo Pau)

Room: Aula Magna

Participants:

- Sergio Terzi (Politecnico di Milano, Italy)
 - Manuel Roveri (Politecnico di Milano, Italy)
 - Anna Valente (SUPSI Lugano, Switzerland)
 - Fabio Floreani (Consorzio Intellimech, Bergamo, Italy)
 - Roberto Filipelli (Microsoft Italia)
 - Giuseppe Gammariello (Altran Italia, Roma Italy)
 - Paolo Calefati (PrimaPower, Torino, Italy; EFFRA Bruxelles, Belgium)
 - Pierluigi Petrali, (Whirlpool, Varese, Italy)
 - Fabrizio Rovati (STM, Agrate, Italy)
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16:15-16:45

Coffee break

16:15-18:30

Technical Session: *Wireless Power Transfer: modeling and applications* (Chairs: Marco Raugi, Sami Barmada)

Room: Room 1

INVITED SPEAKER

- **Inductive Power Transfer in the ISM bands**
Paul Mitcheson (Imperial College London, UK)

REGULAR PAPERS

- **Circuit model of a resonator array for a WPT system by means of a continued fraction**
José Alberto, Leonardo Sandrolini and Ugo Reggiani (University of Bologna, Italy)
 - **Contactless battery charging for electric bicycles**
Rosario Miceli, Guido Ala, Massimo Caruso, Filippo Pellitteri and Fabio Viola (University of Palermo, Italy)
 - **Combining WPT and PLC: a review**
Sami Barmada, Marco Raugi and Mauro Tucci (University of Pisa, Italy); Paolo Mezzanotte and Marco Dionigi (University of Perugia, Italy)
 - **Power vs efficiency analysis in high-frequency wireless power transfer systems - Part I: Model**
Femia Nicola and Giulia Di Capua (University of Salerno, Italy); Gianpaolo Lisi (Texas Instruments Inc., USA)
 - **Power vs efficiency analysis in high-frequency wireless power transfer systems - Part II: Applications**
Femia Nicola and Giulia Di Capua (University of Salerno, Italy); Gianpaolo Lisi, Dingkun Du and Rajaram Subramonian (Texas Instruments Inc., USA)
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16:15-18:30

Technical Session: *Biologically inspired models for innovation in Medicine*
(Chairs: Sergio Cerutti, Mauro Ursino)

Room: Room 2

INVITED SPEAKER

- **Neurophysiological indices of brain plasticity from EEGbased modeling of brain networks**
Laura Astolfi (University of Rome Sapienza, Italy)

REGULAR PAPERS

- **A neurocomputational model of Dopamine dependent Finger Tapping Task**
Chiara Baston and Mauro Ursino (University of Bologna, Italy)

- **Modeling of intracranial hemodynamics and cerebral venous outflow: pressures and flows behavior under arterial pulse simulation**
Giacomo Gadda, Angelo Taibi, Francesco Sisini, Mauro Gambaccini and Paolo Zamboni (University of Ferrara, Italy); Mauro Ursino (University of Bologna, Italy)
- **Sensory fusion: a neurocomputational approach**
Mauro Ursino, Cristiano Cuppini and Elisa Magosso (University of Bologna, Italy)
- **ProFAX: a hardware acceleration of a protein folding algorithm**
Giulia Guidi, Lorenzo Di Tucci and Marco Santambrogio (Politecnico di Milano, Italy)
- **Model based lesion segmentation in FDG-PET from raw data and clinical images**
Giuseppe Baselli (Politecnico di Milano, Italy); Elisabetta De Bernardi (University of Milano-Bicocca, Italy); Chiara Soffientini (Politecnico di Milano, Italy); Chiara Gianoli (Ludwig Maximilians University -LMU, Munich, Germany); Elena Faggiano (University of Pavia, Italy); Felicia Zito (Ospedale Maggiore Policlinico, Mangiagalli e Regina Elena, Italy)

16:15-18:30

Tutorial 4: *Decentralized Computing in Smart Grids by Self-Organizing Sensor Networks* (Alfredo Vaccaro, University of Sannio)

Room: Room 4

16:15-18:30

IEEE Italy Section - Action for Industry Meeting

Room: Room 5

20:00-22:00

Social Dinner

RTSI 2016 Technical Program

DAY 3 - September 9th, Friday

08:30-10:15

Technical Session: (I) *Smart Emerging Technologies for Industry 4.0*

(Chairs: Maurizio Fiasché, Marco Taisch)

Room: Room 2

INVITED SPEAKER

- **The Already Possible Factory Of The... Present!**
Diego Liberati (CNR; Politecnico di Milano, Italy)

REGULAR PAPERS

- **Vessel monitoring and design in industry 4.0: a data driven perspective**
Luca Oneto (DIBRIS - University of Genoa, Italy); Andrea Coraddu (DAMEN Shipyards Singapore, Singapore); Toine Cleophas and Katerina Xepapa (DAMEN Shipyards Gorinchem, The Netherlands); Davide Anguita (University of Genoa, Italy)
- **An innovative perspective on ADS-B**
Maximilian Arpaio (Thales Italia Spa; Air Traffic Management Domain, Italy)
- **Energy consumption analysis of TSCH-enabled platforms for the Industrial-IoT**
Pietro Boccadoro, Michele Barile, Giuseppe Piro and Luigi Alfredo Grieco (Politecnico di Bari, Italy)

08:30-10:15

Technical Session: (I) *Enabling technologies for measurement challenges in dual-use scenarios*

(Chairs: Leopoldo Angrisani, Domenico Accardo, Bernardo Tellini)

Room: Room 3

INVITED SPEAKER

- **Development of explosive traces sensors for a dual civilian and military use**

Denis Spitzer (French German Research Institute of Saint Louis, France)

REGULAR PAPERS

- **Instrumentation of the 40mm-projectile for roll rate and roll angle estimation**

Markus Stefer and Emmanuel Pecheur (French-German Research Institute of Saint-Louis, France); Loic Bernard (ISL, France)

- **Multi agent path planning strategies based on kalman filter for surveillance missions**

Desiree Gentilini and Nicola Farina (Pangea Formazione, Italy); Enrico Franco (Istituto Nazionale di Fisica Nucleare, Italy); Anna Elena Tirri, Domenico Accardo, Rosario Schiano Lo Moriello and Leopoldo Angrisani (University of Naples Federico II, Italy)

- **A Cognitive Approach for radar receiver adaptation**

Luca Pallotta, Augusto Aubry, Vincenzo Carotenuto and Antonio De Maio (University of Naples Federico II, Italy); Alfonso Farina (IEEE AESS BoG VP Industry Relations, Italy)

- **Employment of software defined radios for dual-use in distributed spectrum monitoring system**

Leopoldo Angrisani (University of Naples Federico II, Italy); Domenico Capriglione, Gianni Cerro and Luigi Ferrigno (University of Cassino and Southern Lazio, Italy); Gianfranco Miele (Pegaso Online University, Italy)

10:15-10:45**Coffee break**

10:45-11:15**Exhibition Time**

11:15-13:00

Technical Session: *Biorobotics and Rehabilitation*

(Chairs: Anna Bianchi, Silvestro Micera)

Room: Room 1

REGULAR PAPERS

- **Assessment of the usability of a computerized Stroop Test for clinical application**
Stefania Coelli and Giulia Tacchino (Politecnico di Milano, Italy); Elisa Rossetti (Abtremila srl, Italy); Mario Veniero (Abmedica spa, Italy); Luigi Pugnetti and Francesca Baglio (Don Carlo Gnocchi Foundation, Italy); Anna Bianchi (Politecnico di Milano, Italy)
- **Technical validation of an integrated robotic hand rehabilitation device: finger independent movement, EMG control, and EEG-based biofeedback**
Marta Gandolla, Simona Ferrante, Stefania Coelli and Giulia Tacchino (Politecnico di Milano, Italy); Irene Alice Chicchi Giglioli (Italian National Research Center on Aging (INRCA), Italy); Michele Cotti Cottini and Carlo Seneci (Idrogenet Srl, Italy); Alessandro Scannapieco and Mario Veniero (AB Medica s.p.a.); Alessandra Pedrocchi (Politecnico di Milano, Italy)
- **A Feasibility study of a compact radar system for autonomous walking of blind people**
Valentina Di Mattia (Polytechnic University of Marche, Italy); Alina Caddemi and Emanuele Cardillo (University of Messina, Italy); Giovanni Manfredi De Leo, Paola Russo, Lorenzo Scalise and Graziano Cerri (Polytechnic University of Marche, Italy)
- **An automatic scaling procedure for a wearable and portable hand exoskeleton**
Matteo Bianchi, Francesco Fanelli, Leandro Giordani and Alessandro Ridolfi (University of Florence, Italy); Federica Vannetti (Don Carlo Gnocchi Foundation, Italy); Benedetto Allotta (University of Florence, Italy)
- **Free context smartphone based application for motor activity levels recognition**
Valentina Simonetti (AbAcus srl; Politecnico di Milano, Italy); Walter Baccinelli, Maria Bulgheroni and Enrico d'Amico (AbAcus srl, Italy)

- **The Armeo Spring as training tool to improve upper limb functionality in hemiplegic cerebral palsy: a pilot study**
Veronica Cimolin and Alessandro Vagnini (Politecnico di Milano, Italy); Chiara Germiniasi (IRCCS “E. Medea”, Bosisio Parini, Italy); Manuela Galli and Ilaria Pacifici (Politecnico di Milano, Italy); Luisella Negri, Elena Beretta and Luigi Piccinini (IRCCS “E. Medea”, Bosisio Parini, Italy)
 - **Use of the gait profile score for the quantification of the effects of robot-assisted gait training in patients with Parkinson's disease**
Manuela Galli, Veronica Cimolin and Ilaria Pacifici (Politecnico di Milano, Italy); Maria Francesca De Pandis (San Raffaele Cassino Hospital, Tosinvest Sanità, Italy); Alessandro Vagnini (Politecnico di Milano, Italy); Domenica Le Pera, Ivan Sova, Giorgio Albertini, Fabrizio Stocchi and Marco Franceschini (IRCCS San Raffaele Pisana, Tosinvest Sanità, Italy)
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11:15-13:00

Technical Session: (II) *Smart Emerging Technologies for Industry 4.0*

(Chairs: Maurizio Fiasché, Marco Taisch)

Room: Room 2

REGULAR PAPERS

- **Vision-based guidance of a robotic arm for object handling operations - The WhiteR vision framework**
Christos T. Theoharatos, Dimitris Kastaniotis and Dimitris Besiris (Computer Vision Systems, IRIDA Labs S.A., Greece); Nikos Fragoulis (University of Patras, Greece)
- **Additive manufacturing as a strategic tool for industrial competition**
Francesco G Sisca, Cecilia M Angioletti and Marco Taisch (Politecnico di Milano, Italy); James Colwill (Loughborough University, United Kingdom)

- **A Web-based monitoring application for textile machinery industry**
Alan Scarpellini (Consorzio Intellimech, Italy); Luca Fasanotti (Consorzio Intellimech); Andrea Piccinini (University of Bergamo, Italy); Stefano Ierace (Consorzio Intellimech, Italy); Fabio Floreani (Consorzio Intellimech)
 - **Multi-objective particle swarm optimization applied to distribution fitting for industrial data**
Valentina Colla, Gianluca Nastasi, Simone Baldetti and Marco Del Seppia (Scuola Superiore Sant'Anna, Pisa, Italy)
 - **Human-centric factories 4.0: a mathematical model for job allocation**
Maurizio Fiasché, Marta Pinzone, Paola Fantini, Ana Alexandru and Marco Taisch (Politecnico di Milano, Italy)
 - **State of the art of technology in the food sector value chain towards the IoT**
Lucia Ramundo, Marco Taisch and Sergio Terzi (Politecnico di Milano, Italy)
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11:15-13:00

Technical Session: (II) *Enabling technologies for measurement challenges in dual-use scenarios*

(Chairs: Leopoldo Angrisani, Domenico Accardo, Bernardo Tellini)

Room: Room 3

INVITED SPEAKER

- **Air-space applications in Italian air force: the experience of flight test wing**
Ferdinando Dolce (Aeronautica Militare Gruppo Sperimentale Volo di Pratica di Mare – Italy)

REGULAR PAPERS

- **On the use of lithium batteries at high power pulses discharge rates**
Mirko Marracci and Bernardo Tellini (University of Pisa, Italy); Oliver Liebfried and Volker Brommer (French-German Research Institute of Saint-Louis, France)

- **Dual-use Cosmo/Skymed data for the monitoring of coastal areas: azimuth ambiguity filtering**
Gerardo Di Martino, Antonio Iodice, Daniele Riccio and Giuseppe Ruello (University of Naples Federico II, Italy)
 - **Cooperative UAV navigation under nominal GPS coverage and in GPS-challenging environments**
Amedeo Rodi Vetrella and Giancarmine Fasano (University of Naples Federico II, Italy)
 - **Performance and metrological characteristics of THz systems for dual use applications**
Leopoldo Angrisani, Giovanni Cavallo, Annalisa Liccardo, Rosario Schiano Lo Moriello, Francesco Bonavolontà, Antonello Andreone and Gian Paolo Papari (University of Naples Federico II, Italy)
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11:15-13:00

Tutorial 5: *Big Data 2.0 Processing Systems: Technologies, Challenges and Opportunities*

(Sherif Sakr, University of New South Wales, Sydney, Australia)

Room: Room 4

13:00-14:15

Lunch time

14:15-16:00

Technical Session: *Security and Privacy in Emerging Scenarios*

(Chair: Sara Foresti)

Room: Room 1

REGULAR PAPERS

- **Application requirements with preferences in cloud-based information processing**
Sabrina De Capitani di Vimercati, Giovanni Livraga and Vincenzo Piuri (University of Milan, Italy)

- **A delegated authorization solution for smart-city mobile applications**
Giada Sciarretta (University of Trento; Fondazione Bruno Kessler, Italy); Roberto Carbone and Silvio Ranise (Fondazione Bruno Kessler, Italy)
- **Data security issues in MaaS-enabling platforms**
Franco Callegati, Saverio Giallorenzo, Andrea Melis and Marco Prandini (University of Bologna, Italy)
- **Future scenarios and challenges for security and privacy**
Meredydd Williams, Louise Axon, Jason R. C. Nurse and Sadie Creese (University of Oxford, United Kingdom)
- **Analyzing Internet censorship in Pakistan**
Giuseppe Aceto, Alessio Botta and Antonio Pescapé (University of Naples Federico II, Italy); M Faheem Awan and Tahir Ahmad (National University of Science and Technology, Pakistan); Saad B. Qaisar (National University of Sciences; Technology, Pakistan)
- **Evaluation of anomaly detection for in-vehicle networks through information-theoretic algorithms**
Mirco Marchetti, Dario Stabili, Alessandro Guido and Michele Colajanni (University of Modena and Reggio Emilia, Italy)

14:15-16:00

Technical Session: (III) *Smart Emerging Technologies for Industry 4.0*
(Chairs: Maurizio Fiasché, Marco Taisch)

Room: Room 2

REGULAR PAPERS

- **Solution for humidity measurement using NI PCI 6221 and LabVIEW**
Ocoleanu Constantin Florin (University of Craiova; Electrical Engineering Faculty, Romania)
- **The white'R energy assessor tool**
Manuel Lai and Giulia Molinari (Iris S. r. l., Italy)
- **Design of a HTML5 SCADA system**
Yamuna Maccarana and Alberto Luigi Cologni (University of Bergamo, Italy); Fabio Previdi (University of Bergamo, Italy).

- **The impact of IoT technologies on product-oriented PSS - the "home delivery" service case**
Marco Seregni, Claudio Sassanelli, Daniele Cerri, Cristiano Zanetti and Sergio Terzi (Politecnico di Milano, Italy)
- **Drone based smart monitoring system in environment (DSMSE)**
Pandit Mulay (University of Evora Portugal; VIT University, Portugal); Daniele Bortoli (University of Evora, Portugal)
- **Building a smart maintenance architecture using smart devices: a web 2.0 based Approach**
Ana Alexandru, Maurizio Fiasché, Claudia Pinna and Marco Taisch (Politecnico di Milano, Italy); Luca Fasanotti (University of Bergamo, Italy); Piergiorgio Grasseni (Smi Group, Italy)

14:15-16:00

Technical Session: (I) *New Materials and applications in magnetics*

(Chairs: Antonio Faba)

Room: Room 3

KEYNOTE SPEAKER

- **Progress in Magneto-Optical Kerr Microscopy**
Rudolf Schafer (Leibniz Institute for Solid State and Materials Research, Dresden, Germany)

INVITED SPEAKER

- **Modeling dynamic hysteresis through fully connected cascade neural networks**
Gabriele Maria Lozito (University of Roma Tre, Italy)

REGULAR PAPERS

- **FEM Model identification for a vector hysteresis workbench**
Antonino Laudani, Gabriele Maria Lozito, Francesco Riganti Fulginei and Alessandro Salvini (University of Roma Tre, Italy)
- **Vector hysteresis model to describe micromagnetic structures**
Mario Carpentieri (University of Bari, Italy); Silvano Vergura (Politecnico di Bari, Italy); Vito Puliafito and Giovanni Finocchio (University of Messina, Italy)

14:15-16:00

Technical Session: (I) *IoT and Big Data: Efficient Management of Sensor/Cloud Integration*

(Chairs: Paolo Bellavista, Antonio Corradi)

Room: Room 4

INVITED PAPERS

- **Beyond Digital Footprint: technology and community management to improve local searchability**
Claudio Bergamini (Imola Informatica SpA, CEO)

REGULAR PAPERS

- **Towards better scalability for IoT-cloud interactions via combined exploitation of MQTT and CoAP**
Paolo Bellavista and Alessandro Zanni (University of Bologna, Italy)
- **A Renovated mobile agents middleware for WSN - Porting of agilla to the TinyOS 2.x Platform**
Luigi Pomante, Marco, Walter Tiberti, Stefano Marchesani, Lorenzo Corradetti and Daniele Gregori (University of L'Aquila, Italy, Italy)
- **On the integration of heterogeneous data sources for the collaborative Internet of Things**
Federico Montori, Luca Bedogni and Luciano Bononi (University of Bologna, Italy)
- **Polluino: an efficient cloud-based management of IoT devices for air quality monitoring**
Giovanni Battista Fioccola, Raffaele Sommesse, Imma Tufano, Roberto Canonico and Giorgio Ventre (University of Naples Federico II, Italy)
- **IoT platform for smart cities: requirements and implementation case studies**
Edoardo Patti and Andrea Acquaviva (Politecnico di Torino, Italy)

14:15-16:00

Student Branch Meeting

Room: Room 5

16:00-16:30

Coffee break

16:30-18:15

Technical Session: *Algorithms, techniques, and architectures for Big-Data-Analytics-as-a-Service*

(Chairs: Ernesto Damiani, Claudio Ardagna)

Room: Room 1

KEYNOTE SPEAKER

- **Traceability, Trust, and Privacy in Big Data Analytics: Issues and Enforcement**
Lionel Brunie (INSA, Lyon, France)

REGULAR PAPERS

- **Facing Big Data variety using a model driven approach**
Paolo Ceravolo (University of Milan, Italy); Marcello Leida and Carlos Ruis (Taiger, Spain)
- **A Consensus-based approach for selecting cloud plans**
Ala Arman, Sara Foresti and Giovanni Livraga (University of Milan, Italy); Pierangela Samarati (University of Milan, Italy)
- **Nubytics: scalable cloud services for data analysis and prediction**
Eugenio Cesario (ICAR-CNR); Andrea Raffaele Iannazzo (Dtok Lab Srl, Italy); Fabrizio Marozzo (University of Calabria, Italy); Fabrizio Morello (Dtok Lab Srl, Italy); Domenico Talia (University of Calabria); Paolo Trunfio (University of Calabria, Italy)
- **Anomaly detection in aerospace product manufacturing: initial remarks**
Anna Maria Crespino (University of Salento, Italy)

16:30-18:15

Technical Session: (II) *New materials and applications in magnetics*

(Chairs: Antonio Faba)

Room: Room 3

INVITED SPEAKER

- **A passive clutch based on MagnetoRheological fluids and Eddy currents**
Rocco Rizzo (University of Pisa, Italy)

REGULAR PAPERS

- **On the effects of the average grain size for the simulation of GO FeSi alloys via the single hysteron model**
Simone Quondam Antonio and Michele Pompei (University of Perugia, Italy)
- **Moving Vector Hysteron Model Identification based on Neural Network Inversion**
Sara Carcangiu (University of Cagliari, Italy); Ermanno Cardelli and Antonio Faba (University of Perugia, Italy); Alessandra Fanni (University of Cagliari, Italy); Augusto Montisci (University of Cagliari, Italy); Simone Quondam Antonio (University of Perugia, Italy)
- **Fault Detection of resonant inverters for wireless power transmission using MLMVNN**
Alberto Reatti, Lorenzo Ciani and Marcantonio Catelani (University of Florence, Italy); Marian K. Kazimierczuk (Wright University, USA)
- **Performances prediction of inductive blocking devices for the mitigation of the lightning indirect effects**
Michele Pompei, Antonio Faba, Simone Quondam Antonio and Francesco Tissi (University of Perugia, Italy)

16:30-18:15**Technical Session:** (II) *IoT and Big Data: Efficient Management of Sensor/Cloud Integration*

(Chairs: Paolo Bellavista, Antonio Corradi)

Room: Room 4**INVITED SPEAKERS**

- **Consorzio Interuniversitario Nazionale per l'Informatica (CINI): Research and Technologies for Society and Industry via the Experience of the CINI Labs**
Paolo Prinetto (CINI, Politecnico di Torino, Italy)
- **The CINI Lab for Cyber Security: Ongoing Projects and Opportunities**
Roberto Baldoni (CINI, University of Rome La Sapienza, Italy)

REGULAR PAPERS

- **Deploying advanced services in the #SmartME infrastructure**
Dario Bruneo, Salvatore Distefano, Francesco Longo, Giovanni Merlino and Antonio Puliafito (University of Messina, Italy)
- **Accuracy vs. traffic trade-off of Learning IoT Data Patterns at the Edge with Hypothesis Transfer Learning**
Lorenzo Valerio, Andrea Passarella and Marco Conti (IIT-CNR, Italy)
- **CloudSurf: a platform for monitoring public-cloud networks**
Valerio Persico (University of Naples Federico II, Italy); Antonio Montieri (NM2 srl, Italy); Antonio Pescapé (University of Naples Federico II, Italy)

18:15-18:30**Closing Remarks**
