



2018 IEEE 23rd International Conference on Emerging Technologies and Factory Automation

With the support of



TORINO • Italy

4-7 September 2018

program

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MESSAGE FROM THE GENERAL CO-CHAIRS

It is our pleasure to welcome in Torino, Italy, all participants to the 23rd IEEE International Conference on Emerging Technologies and Factory Automation.

Since the first edition in 1992 in Melbourne, Australia, the ETFA conference series has evolved to one of the largest and most important IEEE conferences dedicated to industrial and factory automation - presenting new research results at the cutting edge of emerging technologies in applications in diverse areas of industrial automation, as well as providing a discussion forum for professionals from academia and industry alike. Technical content of the ETFA conference series reflects rapid evolution of the industrial automation field and the ever-increasing impact of the underpinning research and development on the advances in the industrial automation.

This year's ETFA takes place in Torino, Italy with the sponsorship of the IEEE Industrial Electronics Society and the great support of the Institute of Electronics, Computer and Telecommunication Engineering (IEIIT) - Torino, belonging to the National Research Council of Italy.

Torino is one of the most important business and cultural centers in northern Italy. The city has a rich culture and history, being known for its numerous art galleries, restaurants, churches, palaces, opera houses, piazzas, parks, gardens, theatres, libraries, museums and other venues.

Turin is well known for its Renaissance, Baroque, Rococo, Neo-classical, and Art Nouveau architecture. The city currently hosts some of Italy's best universities, such as the Turin Polytechnic, which kindly provides the conference venue.

Turin is also well known for hosting automobile manufacturers like FIAT, Lancia and Alfa Romeo. For all the above, we believe that ETFA attendees will enjoy their stay in a city where art, science and industry are flourishing.

This edition of the ETFA series offers a very strong technical program, comprising regular, special, and work in progress sessions, preceded by three workshops. The three keynote speakers will open each conference day by bringing to the audience the point of view of prominent industrial researchers. Dr. Ing. Arturo Baroncelli, Past President of the International Federation of Robotics, will give a presentation on "**Industrial and Service Robotics: State of the Art and Future Trends**".

Dr. Sebastian Obermeier of ABB Switzerland will present a contribution on "**Cyber Security Research Challenges - An Industry Perspective**". Finally, Dr. Fabio Tampalini of RAILab S.r.l., Italy, will talk about "**Tomorrow's Automation from an Industrial Point of View**".

We would like to acknowledge contribution of all Program Committee Members.

Our appreciation goes to Carla Seatzu and Cristian Mahulea, Program Committee Chairs; Ivan Cibrario Bertolotti and Souad Bezzaoucha, Work-in-Progress Chairs; and Lucia Seno and Lukasz Wisniewski, Special Session Chairs, for their dedication and excellent organization of the scientific part of the conference. We also wish to acknowledge the contribution of Marina Indri and Herminio Martinez who managed the Workshops.

The social program is also an important part of a conference. The social events are not only fostering the communication between the participants but also offer the organizer the opportunity to present a bit of the flair and culture of Torino. The welcome reception will be at the Castello del Valentino, a 16th century royal residence of impressive

external architecture, while the gala dinner will be held at the Museo Nazionale dell'Automobile (National Car Museum, www.museoauto.it) a fascinating, interactive museum which was recently renovated with a modern, innovative design. A real architectural work of art. A jewel for all car lovers.

An event of this size and importance cannot be organized without the help of a large number of volunteers. We would like to thank all of them for their dedicated work. We are especially indebted to the local organizing team of the IEIIT-CNR. Our sincere gratitude goes to the International Program Committee, the Track Chairs, the Special Sessions Organizers and the Reviewers and also to the Publication Chair, Andrés A. Nogueiras Melendez, the Keynote Speakers, and all attendees, who make this event possible.

Please enjoy the conference and your stay in Torino, Italy.

The ETFA 2018 General Co-Chairs



Luca Durante

CNR-IEIIT, Italy



Lucia Lo Bello

University of Catania, Italy



Roberto Oboe

University of Padova, Italy

WELCOME MESSAGE FROM THE TECHNICAL PROGRAM COMMITTEE

On behalf of the Technical Program Committee, welcome to the 23rd IEEE International Conference on Emerging Technologies and Factory Automation (ETFA2018), held in Torino, Italy, from September 4 to September 7, 2018.

Since the beginning in 1992, the ETFA conference has been among the major international events dedicated to industrial automation and related emerging technologies, attracting people from academia and industry. The current edition counts the following 10 technical tracks (between parenthesis the names of the track co-Chairs): Information Technology in Automation (Alexander Fay and Valeriy Vyatkin); Industrial Communication Technology and Systems (Luis Lino Ferreira and Johan Akerberg); Real-Time and (Networked) Embedded Systems (Martin Horauer and Claudio Passerone); Automated Manufacturing Systems (Mariagrazia Dotoli and Michael Weyrich); Industrial Control (Ramon Vilanova and Antonio Visioni); Computer Vision, Computational Intelligence, and Modern Heuristics in Automation (Jesus Bermudez and Marco Porta); Intelligent Robots & Systems (Holger Voos and Alberto Ortiz); Intelligent Sensors, Sensor Networks, and Information Processing, Networked Sensing (Mihai Lazarescu and Roberto Passerone); Complex Systems and Systems Engineering (Athanasios Kalogerias and Luca Ferrarini); New frontiers in Automation: Cyber-Physical Systems and Artificial Intelligence (Tullio Facchinetti and Oliver Niggemann).

Following the tradition of the ETFA series, in addition to Regular and Special Sessions papers, the ETFA 2018 Conference program includes papers on recent research results and ongoing research at the forefront of technology. All regular tracks are accompanied by sessions of Work in Progress papers, each allocated a 5 minutes oral presentation, followed by a poster session. This platform is intended to provide feedback to the authors and discuss open research and technological problems, through interactive discussions.

In the response to the call for papers, we received a total number of 175 Regular papers, 30 Special Session papers, and 71 Work in Progress papers.

All submissions were thoroughly reviewed by program committee members and external reviewers in the respective tracks. To ensure a high standard of the conference, each paper was assigned to at least three reviewers. We are very grateful to all the track chairs who accomplished the difficult task of collecting reviews in due time. Special Session papers were reviewed within the corresponding tracks to ensure a uniform review process.

On the basis of track chairs recommendations, we had 128 Regular papers, 18 Special Session Papers, and 52 Work in Progress Papers, with acceptance rates in the three above categories equal to 73%, 60%, and 73%, respectively.

ETFA 2018 also comprises of 3 keynote speeches to provide state-of-the-art overviews and give a perspective on future research in important areas of the conference: Cyber Security Research Challenges - An Industry Perspective (by Sebastian Obermeier, Group Research Area Manager Software, ABB Switzerland); Tomorrow's Automation from an Industrial Point of View (by Fabio Tampalini, Co-Founder & CEO at RAILab S.r.l., Italy); Industrial and Service Robotics: State of the Art and Future Trends (by Arturo Baroncelli, Past President Int. Federation of Robotics Engelberger Prize).

We would also like to thank the numerous members of the international program committee and the reviewers for their timely and thorough contribution. Their willingness to dedicate precious time to the conference is very much appreciated. We also appreciate the excellent cooperation with ETFA 2018 General Co-Chairs: Luca Durante, Lucia Lo Bello, Roberto Oboe.

Finally, we would like to thank all the authors who submitted their work to ETFA 2018 and contributed in this way most of all to the technical success of the conference.

**Program Committee
Co-Chairs**

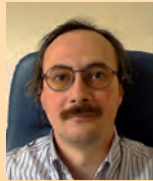


Cristian Mahulea
University of Zaragoza, Spain



Carla Seatzu
University of Cagliari, Italy

**Work-In-Progress
Co-Chairs**



Ivan Cibrario Bertolotti
CNR-IEIIT, Italy



Souad Bezzaoucha
*University of Luxembourg
Luxembourg*

**Special Sessions
Co-Chairs**



Lucia Seno
CNR-IEIIT, Italy



Lukasz Wisniewski
*Ostwestfalen-Lippe University
Germany*

WELCOME MESSAGE FROM THE IEEE IES PRESIDENT



Professor Xinghuo Yu
*President, IEEE
Industrial Electronics
Society*

On behalf of the IEEE Industrial Electronics Society (IES), I would like to welcome you all to the 23rd IEEE International Conference on Emerging Technologies and Factory Automation (ETFA 2018) in the beautiful city of Turin - one of the most important business and cultural centres in Italy.

ETFA 2018 poises to be an exciting event that will showcase the fast technological developments in emerging technologies and factory automation in the world and foresee the future ahead of us.

ETFA series started in 1992 in Melbourne, Australia, which I now call home, to respond to the urgent needs of industrial and factory automation at the time.

It has since become one of the most important IEEE conferences dedicated to the field to reflect rapid evolution of the industrial automation field and the ever-increasing impact of the underpinning research and development on the advances in the industrial automation.

This series, just like many other initiatives, reflects how IEEE IES work with other organisations to respond to the future needs of community and industry around the world. IEEE IES has been around since 1951 with sustained growing membership to reach around 7000 as of today. Our Field of Interest is the 'theory and applications of electronics, controls, communications, instrumentation and computational intelligence to industrial and manufacturing systems and processes'. The applied and practical nature of Industrial Electronics defines who we are and what we do. Industry engagement and impact are certainly something that is very important to us. ETFA 2018 is a clear example of IEEE IES to meet today's expectations of community and industry on us for relevance and impact.

The world around us has been changing rapidly so should IEEE IES - we need to keep abreast with the times. We have very active technical activities spearheaded by 23 Technical Committees across a broad range of technical areas such as, electrical machines, energy storage, renewable energy systems, smart grids, transportation electrification, power electronics, control systems, artificial intelligence, sensors, robotics and mechatronics. In addition to ETFA, we have major conference series such as Annual Conference of IEEE Industrial Electronics Society (IECON), International Symposium on Industrial Electronics (ISIE), International Conference on Industrial Technology (ICIT), and International Conference on Industrial Informatics (INDIN). We are a major contributor to many important initiatives, such as IEEE Women in Engineering, IEEE Smart Village, IEEE Internet of Things, and IEEE Smart Grid. We will continue our endeavours in any areas of future needs, and look forward to working with you for the betterment of the world.

I would like to congratulate the conference organisers, especially the general co-chairs, Luca Durante, Lucia Lo Bello, and Roberto Oboe, program committee co-chairs Cristian Mahulea, Carla Seatzu, work-in-progress co-chairs Ivan Cibrario Bertolotti, Souad Bezzaoucha and their enthusiastic and dynamic teams for their initiatives and dedication to the organisation of this excellent conference. ETFA 2018 has reached a new height with new leadership team and record number of submissions, impressive keynote speakers, and substantial industry engagement. I am confident that, with your support, it will continue to grow from strength to strength and make its due contribution to the world.

Best wishes

COMMITTEES

Honorary Chair

Adriano Valenzano, CNR-IEIIT, Italy

General Co-Chairs

Luca Durante, CNR-IEIIT, Italy

Lucia Lo Bello, University of Catania, Italy

Roberto Oboe, University of Padova, Italy

Program Committee Co-Chairs

Carla Seatzu, University of Cagliari, Italy

Cristian Mahulea, University of Zaragoza, Spain

Work-in-Progress Co-Chairs

Ivan Cibrario Bertolotti, CNR-IEIIT, Italy

Souad Bezzaoucha, University of Luxembourg,
Luxembourg

Special Sessions Co-Chairs

Lucia Seno, CNR-IEIIT, Italy

Lukasz Wisniewski, Ostwestfalen-Lippe
University, Germany

Workshops Co-Chairs

Herminio Martinez, Tech. University of
Catalonia, Spain

Marina Indri, Politecnico di Torino, Italy

Treasurer

Ivan Cibrario Bertolotti, CNR-IEIIT, Italy

Publication Chair

Andrés A. Nogueiras Melendez, University of
Vigo, Spain

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A. Fay, Helmut-Schmidt University, Germany

J. M. Fuertes, University Politècnica de
Catalunya, Spain

H. Fujita, University of Tokyo, Japan

L. Gomes, University Nova Lisboa, Portugal

A. Grau, University Politècnica de Catalunya,
Spain

Ch. Hadjicostis, University of Cyprus, Cyprus

F. Harashima, Tokyo Metropolitan University,
Japan

J. Jasperneite, Fraunhofer, Germany

C.-J. Kim, UCLA, USA

S. Koubias, University of Patras, Greece

K. Lee, University of Hawaii at Manoa, USA

Z. Mammeri, University of Toulouse 3, France

M. Marcos, University of Basque Country, Spain

V. Marik, Czech Tech. University in Prague, Czech
Republic

O. Mirabella, University of Catania, Italy

M. Miskowicz, AGH UST, Poland

J.-M. Proth, INRIA - Lorraine, France

C. Seatzu, University of Cagliari, Italy

H. Voss, University of Luxembourg, Luxembourg

A. Weaver, University of Virginia, USA

R. Zurawski, ISA Group, USA

KEYNOTES



Dr. Sebastian Obermeier

Group Research Area Manager Software, ABB Switzerland

Dr. Sebastian Obermeier holds a doctoral degree (Dr. rer. nat.) in computer science from the University of Paderborn, Germany.

In 2008, he joined ABB Corporate Research in Switzerland and was appointed Senior Principal Scientist for Cyber Security in 2014.

In his current position as Group Research Area Manager Software, he is in charge of ABB's global software research, with teams located in the US, Europe, and Asia.

His research interests include IT security for industrial control systems and Blockchain technologies.

Topic: CYBER SECURITY RESEARCH CHALLENGES - AN INDUSTRY PERSPECTIVE

Abstract

Cyber Security is a topic of increasing importance in the industry. While its main focus has mostly been on availability, the recent trends in digitization and cloud computing require new research approaches to data privacy and data immutability.

In this talk, we highlight the current cyber security challenges and give an outlook on the future needs from an industrial perspective.



Dr. Fabio Tampalini

Co-Founder & CEO at RAILab S.r.l., Italy

Dr. Fabio Tampalini was born in 1977 in Brescia (Italy). In 2003 he received the electronic engineering master degree. In 2007 he received the Ph.D. in Information Engineering with a final dissertation on advanced robotics at the University of Brescia.

Between 2006 and 2008 he worked in the R&D department at Comau Robotics. In that period, he was also involved in the European research project SME Robot.

In 2008 he entered in Tiesse Robot S.p.A. - Kawasaki, as Director of the R&D department.

In 2011 he started to work for DENSO Europe and DENSO Wave Japan as Senior Technical Manager leading the innovative projects and non-standard implementations.

In 2014 he started a new challenge as Technology Integration Manager driving the implementation of a new semi-automated container terminal in the North of Italy for APM Terminals (A.P. Moller Maersk Group).

In 2018 he came back to his first love as Contract Professor for robotics courses at University of Brescia.

In 2018 he co-founded Railab Srl to support robotic makers and technology leaders.

Topic: TOMORROW'S AUTOMATION FROM AN INDUSTRIAL POINT OF VIEW

Abstract

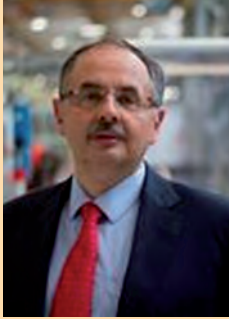
Mainly thanks to the movement generated by Industry 4.0 and by IoT, it is now common to see new and innovative robotic implementations in not so standard automation fields.

Two main topics are fundamental in leading this trend: collaborative robotics and cloud robotics.

With collaborative robotics we are moving from a more robo-centric approach (pure cooperation) to a more collaborative approach where the experience, skill and flexibility of the human operator will become again the center of gravity for a many of new applications.

With cloud robotics we move the knowledge of automation and of application fields from the level of the single robot cell to a more global level.

In this speech we elaborate on the state of the art technology and on future opportunities of the next automation revolution: Industry 5.0.



Dr. Ing. Arturo Baroncelli

Past President International Federation of Robotics
Engelberger Prize

Arturo Baroncelli has a Mechanical Engineering degree from the University of Pisa and Scuola Superiore S. Anna; additionally, he has a post degree diploma in "Program in Executive Development" at IMD, Lausanne, Switzerland.

In Robotics industry since 1985 and in Comau S.P.A. (FCA group), Turin, Italy, since 1988.

Baroncelli has been President of the IFR, International Federation of Robotics, for the years 2013-2015. Since 1998, he has been an Executive Board Member of SIRI, the Italian Robotics association. He was presented with the Joseph Engelberger Award in Tokyo in 2005, the most important Prize in Robotics Industry world-wide. He has written various papers for Conferences and Magazines and holds patents in the field of press to press automation and robot laser welding.

He frequently lectures at various Universities on themes related to Robotics Technology and Business Developments.

From 2015 to March 2018 Arturo Baroncelli has been in the board of Directors of SPARC euRobotics. He is presently vice president of the Association of Alumni of Scuola .S. Anna, Pisa.

Topic: INDUSTRIAL AND SERVICE ROBOTICS: STATE OF THE ART AND FUTURE TRENDS

Abstract

The speech describes, with figures and facts, the present status of both industrial and Service Robotics in various segments (technological, geographical...).

Moreover future directions of Robotics are presented with strong connection with business and technological trends.

PROGRAM AT A GLANCE

TUESDAY · September 4 th , 2018		
	ROOM 5	ROOM 7
09:00-12:30	<p><u>Half-day Workshop</u> Applications of Discrete Event Systems</p>	<p><u>Full-day Workshop</u> Assisting Human Operators in the Industry 4.0: Challenges and Perspectives</p>
12:30-14:00	<i>lunch</i>	
14:00-17:30	<p><u>Half-day Workshop</u> 3rd International Workshop on Robotics Technology Transfer: Innovation from Academia to Industry (RTT2018)</p>	<p><u>Full-day Workshop</u> Assisting Human Operators in the Industry 4.0: Challenges and Perspectives</p>

WEDNESDAY · September 5^h, 2018

09:00-09:25	Opening ceremony			
09:25-10:25	<p>Keynote: Arturo Baroncelli · [Aula Magna] Industrial and Service Robotics: State of the Art and Future Trends</p>			
10:25-10:50	coffee break			
	ROOM 3	ROOM 5	ROOM 7	ROOM 9
10:50-12:30	<p><u>Track 3.1.</u> Optimization of Real-Time and Networked Embedded Systems</p>	<p><u>SS 02</u> HVAC Control Systems</p>	<p><u>Track 6.1.</u> Computer Vision and Industrial Sensorization</p>	<p><u>Track 5.1.</u> Information Based Control Systems</p>
12:30-14:00	lunch			
	ROOM 3	ROOM 5	ROOM 7	ROOM 9
14:00-16:05	<p><u>Track 1.1.</u> Requirements throughout the Lifecycle</p>	<p><u>Track 9.1.</u> Energy System Modeling and Engineering</p>	<p><u>Track 7.1.</u> Robotic Navigation</p>	<p><u>Track 4.1.</u> Methods for the Modelling and Simulation of Automated Manufacturing Planning</p>
16:05-16:30	coffee break			
	ROOM 3	ROOM 5	ROOM 7	ROOM 9
16:30 - 18:35	<p><u>SS 04</u> Ontologies and Information Modelling</p>	<p><u>SS 07</u> Industrial Internet for the Factories of the Future</p>	<p><u>Track 8.1.</u> From Data to Meaning</p>	<p><u>Track 2.1.</u> Industrial Networks and Real-time</p>

THURSDAY · September 6 ^h , 2018				
09:00-10:00	<p>Keynote: Sebastian Obermeier · [Aula Magna] Cyber Security Research Challenges - An Industry Perspective</p>			
10:00-10:25	coffee break			
	ROOM 3	ROOM 5	ROOM 7	ROOM 9
10:25 - 12:30	<p><u>Track 4.2.</u> Data Driven Optimisation of Automated Systems</p>	<p><u>Track 7.2.</u> Human-robot Collaboration and Manipulators</p>	<p><u>Track 5.2.</u> Automation and Control</p>	<p><u>WiP1</u> Tracks 1, 2, 3, 8 & 10</p>
12:30 - 14:00	lunch			
	ROOM 3	ROOM 5	ROOM 7	ROOM 9
14:00-16:05	<p><u>Track 1.2.</u> Analysis, Diagnosis, and Test</p>	<p><u>Track 2.2.</u> Industrial Protocols and IIOT</p>	<p><u>Track 8.2.</u> Localization and Case Studies</p>	<p><u>SS 03</u> Machine Learning for Data-driven Predictive Maintenance in the Industry 4.0 Framework</p>
16:05 - 16:30	coffee break			
	ROOM 3	ROOM 5	ROOM 7	ROOM 9
16:30 - 18:10	<p><u>Track 6.2.</u> Computational Intelligence</p>	<p><u>Track 3.2.</u> Scheduling in Real-Time and Networked Embedded Systems</p>	<p><u>Track 9.2.</u> Complex Manufacturing Systems and Security</p>	<p><u>Track 10.1.</u> Sensor Data Management in Cyber-Physical Systems</p>

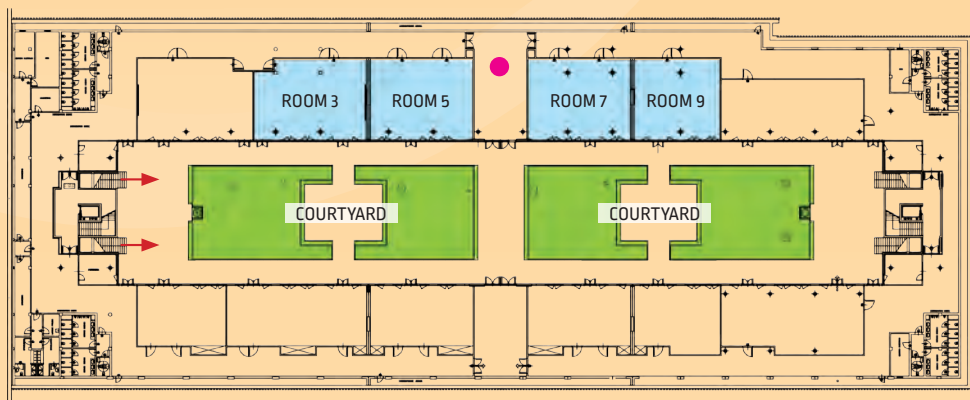
FRIDAY · September 7 th , 2018				
09:00-10:00	<p>Keynote: Fabio Tampalini · <i>[Aula Magna]</i> Tomorrow's Automation from an Industrial Point of View</p>			
10:00-10:25	coffee break			
10:25 - 12:30	ROOM 3	ROOM 5	ROOM 7	ROOM 9
	Track 1.3. Explicit Use of Semantics	Track 9.3. Complex Automation Systems	Track 2.3. Wireless Communications	WiP 2 Tracks 4, 5, 6, 7 & 9
12:30 - 14:00	lunch			
14:00-16:05	ROOM 3	ROOM 5	ROOM 7	ROOM 9
	Track 3.3. Timing Analysis in Real-Time and Networked Embedded Systems	Track 1.4. Platforms and Architectures	Track 4.3. Algorithms for the Scheduling of Flexible Manufacturing Systems	Track 8.3. Modeling and Simulation
16:05 - 16:30	coffee break			
16:30 - 18:10	ROOM 3	ROOM 5	ROOM 7	ROOM 9
	Track 5.3. Control of Industrial Units	Track 4.4. Novel Approaches for Modelling with Petri Nets	Track 7.3. Specific Sensors and Applications	Track 10.2. Cyber-Physical Systems in Industrial and Manufacturing Applications
18:10-18:30	Closing ceremony			

CONFERENCE VENUE MAP



From 1 to 2 five minutes' walking distance.

CAMPUS CITTADELLA POLITECNICA · CORTE INTERRATA ROOMS I



PARALLEL SESSION ROOMS

SECRETARIAT DESK

OUTDOOR CATERING AREA

SCIENTIFIC PROGRAM

TUESDAY

Tuesday · September 4th, 2018

WORKSHOPS

Room:5

Applications of Discrete Event Systems

- 9:00 **Opening.**
Cristian Mahulea, Carla Seatzu
- 9:05 **Efficient Planning and Energy Optimization of Manufacturing Systems.**
Bengt Lennartson
- 9:45 **Fleet Sizing for Electric Car Sharing Systems in Discrete Event System Frameworks.**
Maria Pia Fanti
- 10:25 *Coffee break*
- 10:50 **Using Petri Nets to Model Logistics and Transportation Systems.**
Mariagrazia Dotoli
- 11:22 **Home Care Vehicle Routing Problem: the Case of Chargeable Overtime and Preferences.**
Andrea Matta
- 11:55 **Path and Task Planning of Multi-Robots Systems Using Petri Net Models.**
Cristian Mahulea
- 12:30 **Workshop Closing.**

Room:5

**3rd International Workshop on Robotics Technology Transfer:
Innovation from Academia to Industry [RTT2018]**

- 14:00 **Opening.**
Marina Indri, Antoni Grau
- 14:05 **Reconfigurable Robotic Solution for Effective Finishing of Complex Surfaces.**
Sebastian Hähnel, Fabio Pini, Francesco Leali, Olaf Dambon, Thomas Bergs, Thomas Bletek
- 14:25 **Verification and Timing Analysis of Industry 4.0 Warehouse Automation Workflows.**
Ajay Kattepur, Arijit Mukherjee, Balamuralidhar P.
- 14:45 **Integration of a Production Efficiency Tool with a General Robot Task Modeling Approach.**
Marina Indri, Stefano Trapani, Andrea Bonci, Massimiliano Pirani
- 15:05 **Free discussion and comments.**

- 15:15 **Sustainable Robotics Solutions in Smart Cities. The Challenge of the ECHORD++ Project.**
Antoni Grau, Yolanda Bolea, Ana Puig-Pey, Alberto Sanfeliu, Josep Casanovas
- 15:35 **Flexible Robotic Teleoperation Architecture Under IEC 61499 Standard for Oil & Gas Process.**
Carlos A. Garcia, José E. Naranjo, Marcelo V. Garcia
- 15:55 *Free discussion and comments.*
- 16:05 *Coffee break*
- 16:30 **Low-Cost Cyber-Physical Production Systems for Industrial Control Robots under IEC 61499.**
Carlos A. Garcia, José E. Naranjo, Marcelo V. Garcia
- 16:50 *Free discussion and comments.*
- 17:00 **Round Table: How to Foster Technology Transfer in Robotics?**
Panelists: Dr. Ing. Arturo Baroncelli, Ing. Alessio Cocchi, Prof. Marina Indri, Prof. Antoni Grau
Open discussion among attendees.
- 17:30 **Workshop Closing.**

Room:7

Assisting Human Operators in the Industry 4.0: Challenges and Perspectives

Workshop Part I

- 9.00 **Welcome and Introduction.**
Loris Roveda
- 9.15 **A Robot as a Colleague?**
Alberto Pellerà
- 9:50 **Towards Accurate Positioning of Mobile Manipulators in Industrial Applications.**
Ander Ansuategi
- 10:25 *Coffee break*

Workshop Part II

- 10:50 **Enhancing Robots Knowledge with Semantic Web.**
Blerina Spahiu
- 11:25 **Metrological Characterization of OpenPTrack v2 for Co-robot Applications.**
Matteo Lancini

- 11:55 **SIMFAL H2020 CleanSky 2: Simulation of an Aircraft Final Assembly Line.**
Diego Borro
- 12:30 *Lunch*
- Workshop Part III**
- 14:00 **Human-Robot Collaboration, Criteria for Implementation in the Shop Floor.**
Alessandro Zanella
- 14.30 **Perception for Human-Robot Interaction.**
Stefano Ghidoni
- 15:00 **IoT and Industrial Robotics for Human Operator Support: Case Studies and Challenges.**
Makris Sotiris
- 15:30 **Human Factor Challenges in Human-Robot Interactions.**
Federico Fabbroni
- 16:05 *Coffee break*
- Workshop Part IV**
- 16:30 **Empowering Humans in Cooperative Installation Tasks: Mechanical and Control Design.**
Loris Roveda
- 17:00 **Conclusions and Discussion.**
Loris Roveda

Wednesday · September 5th, 2018

Room:3

Track 3.1: Optimization of Real-time and Networked Embedded Systems

Chair: Martin Horauer

TF-000698

10:50 A Hardware-assisted Translation Cache for Dynamic Binary Translation in Embedded Systems.

Filipe Salgado, Tiago Gomes, Adriano Tavares, Jorge Cabral

TF-003395

11:15 Simulation and Validation Framework for Safety-critical Applications in System-of-systems.

Ayman Murshed, Mohammed Abuteir, Roman Obermaisser

TF-000175

11:40 Minimizing the Make Span of Diagnostic Multi-query Graphs Using Graph Pruning and Query Merging.

Nadra Tabassam, Roman Obermaisser

Room: 5

Special Session 02: HVAC Control Systems

Chair: Mirco Rampazzo

TF-001775

10:50 Local Principal Component Analysis for Fault Detection in Air-condensed Water Chillers.

Francesco Simmini, Mirco Rampazzo, Alessandro Beghi, Fabio Peterle

TF-003255

11:15 Causality-based Thermal Prediction for Data Center.

Anurag Nandwana, Rahul Kumar Vij, Divyasheel Sharma

TF-003921

11:40 Identification of the Gordon-Ng Chiller Model: Linear or Nonlinear Least Squares?

Federica Acerbi, Giuseppe De Nicolao

TF-003972

12:05 Maximizing CO₂ Heat Pump Systems Performance via Extremum Seeking Control.

Andrea Cervato, Chiara Corazzol, Luca Mattiello, Mirco Rampazzo

Room: 7

Track 6.1: Computer Vision and Industrial Sensorization

Chair: Marco Porta

TF-000221

10:50 **Autofocus in Infrared Microscopy.**

*Raphaël Abelé, Daniele Fronte, Pierre-Yvan Liardet, Jean-Marc Boï,
Jean-Luc Damoiseaux, Djamel Merad*

TF-002437

11:15 **Highlighted Deep Learning Based Identification of Pharmaceutical Blister Package.**

*Jing- Syuan Wang, ArulMurugan Ambikapathi, Yun Han, Sheng-Luen Chung,
Hsien-Wei Ting, Chih-Fang Chen*

TF-003948

11:40 **An Inspection System for Multi-label Polymer Classification.**

Tarek Stiebel, Marcel Bosling, Aljoscha Steffens, Thomas Pretz, Dorit Merhof

Room: 9

Track 5.1: Information Based Control Systems

Chairs: Timo Busert and Cédric Escudero

TF-002704

10:50 **Cloud-based Active Disturbance Rejection Control for Industrial Robots.**

Clemens Briese, Axel Vick, Jörg Krüger

TF-003557

11:15 **Process-aware Model based IDSs for Industrial Control Systems Cybersecurity:
Approaches, Limits and Further Research.**

Cédric Escudero, Franck Sicard, Eric Zamai

TF-001651

11:40 **Information Quality Dimensions for Identifying and Handling Inaccuracy
and Uncertainty in Production Planning and Control.**

Timo Busert, Alexander Fay

Room: 3

Track 1.1: Requirements throughout the Lifecycle

Chairs: Daniil Chivilikhin and Alexander Fay

TF-002755

14:00 **Feature-oriented Evolution of Automation Software Systems in Industrial Software Ecosystems.**

Daniel Hinterreiter, Lukas Linsbauer, Florian Reisinger, Herbert Prähofer, Paul Grünbacher, Alexander Egyed

TF-004715

14:25 **Maintenance 4.0: Intelligent and Predictive Maintenance System Architecture.**

Ana Cachada, José Barbosa, Paulo Leitão, Carla A. S. Geraldés, Leonel Deusdado, Jacinta Costa, Carlos Teixeira, António H.J. Moreira, Pedro Miguel Moreira, Luís Romero

TF-000868

14:50 **A Case Study for a Digital Twin of Body-in-white Production System.**

Florian Biesinger, Davis Meike, Benedikt Kraß, Michael Weyrich

TF-002445

15:15 **Counterexample-guided Inference of Controller Logic from Execution Traces and Temporal Formulas.**

Daniil Chivilikhin, Igor Buzhinsky, Vladimir Ulyantsev, Andrey Stankevich, Anatoly Shalyto, Valeriy Vyatkin

TF-004782

15:40 **Designing Digital Tools for Factory Planning: Integrating Requirements for Usability on a Meta-level.**

Uwe Dombrowski, Alexander Reischwich, Alexander Karl

Room: 5

Track 9.1: Energy System Modeling and Engineering

Chairs: Athanasios Kalogeras and Thanikesavan Sivanthi

TF-002038

14:00 **Precision Robustness Testing of a Simulation Model for Energy Use in Buildings.**

George Kalogeras, Christos Koulamas, Athanasios Kalogeras, Antonios Moronis

TF-004359

14:25 **A Model-driven Engineering Approach for Validation of Power System Automation Solutions.**

Thanikesavan Sivanthi, Alexandru Moga, Raphael Eidenbenz, Carsten Franke

TF-004464

14:50 A Consensus-based Distributed MPC Approach for Batteries Sharing in Group of Buildings.
Le Anh Dao, Alireza Dehghani Pilehvarani, Luca Ferrarini

Room: 7

Track 71: Robotic Navigation

Chairs: Andrea Bonci and Carla Seatzu

TF-003883

14:00 Motion Planning of 3D Objects Using Rapidly Exploring Random Tree Guided
by Approximate Solutions.
Vojtech Vonasek

TF-004065

14:25 Path-planning in Discretized Environments with Optimized Waypoints Computation.
Emanuele Vitolo, Cristian Mahulea, Marius Kloetzer

TF-001597

14:50 Keyframe-based Local Normal Distribution Transform Occupancy Maps for Environment
Mapping.
Dominik Belter, Karol Piaskowski, Rafa Staszak

TF-004278

15:15 Decentralized Omnidirectional Route Planning and Reservation for Highly Flexible
Material Flow Systems with Small-scaled Conveying Modules.
Miguel Bande Firvida, Hendrik Thamer, Claudio Uriarte, Michael Freitag

Room: 9

Track 4.1: Methods for the Modelling and Simulation of Automated Manufacturing Planning

Chairs: Kristofer Bengtsson and Michael Weyrich

TF-002887

14:00 Improved Domain Modeling for Realistic Automated Planning and Scheduling
in Discrete Manufacturing.
Antje Rogalla, Alexander Fay, Oliver Niggemann

TF-001309

14:25 Survey on Flexibility and Changeability Indicators of Automated Manufacturing
Systems.
Philipp Marks, Qiang Yu, Michael Weyrich

TF-004324

14:50 **Enable Co-simulation for Industrial Automation by an FMU Exporter for IEC 61499 Models.**

Jose Cabral, Monika Wenger, Alois Zoitl

TF-001805

15:15 **Large-scale Scheduling with Routing, Batching and Release Dates for Wafer Fabs Using Tabu Search.**

Clemens Schwenke, Henri Blankenstein, Klaus Kabitzsch

TF-003069

15:40 **Scheduling of Production and Maintenance Activities Using Multi-agents System.**

Ghita Bencheikh, Agnès Letouzey, Xavier Desforges

Room: 3

Special Session 04: Ontologies and Information Modelling

Chair: Andreas Bunte

TF-000604

16:30 **A Data Provenance-based Architecture to Enhance the Reliability of Data Analysis for Industry 4.0.**

Peng Li, Oliver Niggemann

TF-000639

16:55 **Integrating OWL Ontologies for Smart Services into AutomationML and OPC UA.**

Andreas Bunte, Oliver Niggemann, Benno Stein

TF-003018

17:20 **Ontological Formulation of Microgrid Control System for Interoperability.**

Aravind Ingalalli, Ravish Kumar, Srijit Kumar Bhadra

Room: 5

Special Session 07: Industrial Internet for the Factories of the Future

Chair: Marco Erlich

TF-001953

16:30 **5G as Enabler for Industrie 4.0 Use Cases: Challenges and Concepts.**

Michael Gundall, Markus Aleksy, Norman Franchi, Christian Markwart, Dirk Wübben, Arne Neumann, Monique Düngen, Thomas Neugebauer, Mehmet Kus, Jan Griebbach

TF-002003

16:55 **A 5G Architecture for the Factory of the Future.**

Stephan Ludwig, Michael Karrenbauer, Amina Fellan, Hans D. Schotten, Henning Buhr, Savita Seetaraman, Norbert Niebert, Anne Bernardy, Vasco Seelmann, Volker Stich

TF-002291

17:20 **A Survey of Internet of Things and Big Data Integrated Solutions for Industrie 4.0.**

Khaled Al-Gumaei, Kornelia Schuba, Andrej Friesen, Sascha Heymann, Carsten Pieper, Florian Pethig, Sebastian Schriegel

Room: 7

Track 8.1: From Data to Meaning

Chairs: Xabier Eguiluz and Luis Pastor Sánchez-Fernández

TF-000256

16:30 **Non-intrusive Wireless Torque Sensor Node for Shaft Monitoring in Press Machine.**

Xabier Eguiluz, Iosu Gabilondo, Javier Berganzo, Raul Torrego, Iñaki Val, Ander Etxabe, Jon Basurko, Oier Sarasua

TF-002666

16:55 **Biomechanical Signal Analysis for Evaluation of Gait in Parkinson's Disease.**

Luis Pastor Sánchez-Fernández, Luis Alejandro Sánchez-Pérez, José Juan Carbajal-Hernández, Gabriel de Jesús Rodríguez-Jordán

TF-002879

17:20 **Parameter Optimized Event Detection for NILM Using Frequency Invariant Transformation of Periodic Signals [FIT-PS].**

Pirmin Held, Daniel Weißhaar, Steffen Mauch, Djaffar Ould Abdeslam, Dirk Benyoucef

TF-002895

17:45 **Decentralized and Dynamic Fault Detection Using PCA and Bayesian Inference.**

Alvar Sanchez-Fernandez, Maria Jesus Fuente, Gregorio Ismael Sainz-Palmero

TF-003778

18:10 **Seam Penetration Recognition for GTAW Using Convolutional Neural Network Based on Time-frequency Image of Arc Sound.**

Wenjing Ren, Guangrui Wen, Shijie Liu, Zhe Yang, Bin Xu, Zhifen Zhang

Room: 9

Track 2.1: Industrial Networks and Real-time

Chairs: Peter Danielis and Pal Varga

TF-000795

16:30 **Real-time Capable Internet Technologies for Wired Communication in the Industrial IoT-a Survey.**

Peter Danielis, Henning Puttnies, Eike Schweissguth, Dirk Timmermann

TF-003727

16:55 **PROFINET Real-time Protection Layer: Performance Analysis of Cryptographic and Protocol Processing Overhead.**

Thomas Müller, Hans Dermot Doran

TF-002585

17:20 **Configuration of Slaves Based on the Distributed Co-simulation Protocol.**

Martin Krammer, Martin Benedikt

TF-003905

17:45 **OpenFlow Controller-switch Communication Overhead Reduction Scheme on Industrial Data Center Networks.**

Alif Akbar Pranata, Jae Min Lee, Dong Seong Kim

TF-002364

18:10 **FastReact: In-network Control and Caching for Industrial Control Networks Using Programmable Data Planes.**

Jonathan Vestin, Andreas Kessler, Johan Åkerberg

TF-003433

18:35 **Data-driven Workflow Execution in Service Oriented IoT Architectures.**

Pal Varga, Daniel Kozma, Csaba Hegedus

Thursday · September 6th, 2018

Room: 3

Track 4.2: Data Driven Optimisation of Automated Systems

Chairs: Gianmaria De Tommasi and Jürgen Jasperneite

TF-003131

10:25 **Modelling of Abrasive Blasting Process from Viewpoint of Energy Exchange.**
*Ning Liu, Aaron Alexander Ayu, Xue Li, Sibao Wang, Wen Feng Lu,
Noor Hazman Bin Sulaimi, Chee Meng Chew*

TF-003492

10:50 **Efficient Diagnosability Assessment Via ILP Optimization: a Railway Benchmark.**
*Gianmaria De Tommasi, Francesco Basile, Claudio Sterle, Mohamed Ghazel,
Abderraouf Boussif*

TF-003085

11:15 **Advanced LLE Method for Dimension Reduction using Nonlinear Manufacturing Data.**
Sitong Xu, Wen Feng Lu, Xiang Li, Kee Jin Lee

TF-002356

11:40 **Dynamic Scheduling in Large-scale Stochastic Processing Networks for Demand-driven Manufacturing Using Distributed Reinforcement Learning.**
Shuhui Qu, Jie Wang, Juergen Jasperneite

TF-003506

12:05 **Continuous Maintenance System for Optimal Scheduling Based on Real-time Machine Monitoring.**
Liliana Antão, João Reis, Gil Gonçalves

Room: 5

Track 7.2: Human-robot Collaboration and Manipulators

Chairs: Antoni Grau and Marina Indri

TF-002488

10:25 **Energy Minimization in Time-constrained Robotic Tasks via Sequential Quadratic Programming.**
Marco Faroni, Domenico Gorni, Antonio Visioli

TF-002216

10:50 **Risk Assessment for Human-robot Collaboration in an Automated Warehouse Scenario.**
Rafia Inam, Klaus Raizer, Alberto Hata, Ricardo Souza, Elena Fersman, Enyu Cao, Shaolei Wang

TF-001899

11:15 **Dynamic Regions to Enhance Safety in Human-robot Interactions.**
Dejanira Araiza-Illan, Alberto De San Bernabe Clemente

TF-003107

11:40 **Computer-aided Design of Multi-agent Cyber-physical Systems.**
Jacopo Sini, Violante Massimo, Riccardo Dessi

TF-001783

12:05 **P&P-Standard Architecture to Enable Fast Software Prototyping for Robot Arms.**
Marina Indri, Fiorella Sibona, Ludovico Orlando Russo

Room: 7

Track 5.2: Automation and Control

Chairs: Julio-Ariel Romero and Luca Simoni

TF-000566

10:25 **An AutomationML/OPC UA-based Industry 4.0 Solution for a Manufacturing System.**
Xun Ye, Seung Ho Hong

TF-002836

10:50 **Implementation and Evaluation of Event-based PID in the IEC-61499 Standard.**
Oscar Miguel-Escrig, Julio-Ariel Romero-Pérez

TF-003522

11:15 **Non-invasive Control Solution inside Higher-level OPC UA Based Wrapper for Optimizing Groups of Wastewater Systems.**
Adrian Korodi, Mihaita-Alin Radu, Ruben Crisan

Room: 9

Work-in-Progress · WiP1 (T1, 2, 3, 8, 10)

Chairs: Stefano Scanzio and Lukasz Wisniewski

TF-000248

10:25 **Model-driven Engineering for Petrochemical Industry Automation.**
Thaise Poerschke Damo, Leandro Buss Becker

TF-002453

10:29:30 **Application of the Internet of Things (IoT) technology in Consumer Electronics: Case Study.**
Andrzej Ozadowicz, Jakub Grela, Lukasz Wisniewski, Krzysztof Smok

TF-004413

10:34 **A Variability Information Model for OPC UA.**
Bernhard Wally, Christian Huemer, Alexandra Mazak, Manuel Wimmer

TF-004987

10:38:30 **Concept for an Energy Data Aggregation Layer for Production Sites: a Combination of AutomationML and OPC UA.**
Andreas Würger, Karl-Heinz Niemann, Alexander Fay

TF-005371

10:43 **Comparison of Code Measures of IEC 61131-3 and 61499 standards for Typical Automation Applications.**
Peter Gsellmann, Martin Melik-Merkumians, Georg Schitter

TF-005878

10:47:30 **Automatic Plant-Controller Input/Output Matching using Evolutionary Algorithms.**
Vladimir Mironovich, Maxim Buzdalov, Valeriy Vyatkin

TF-006009

10:52 **Flexible Container Platform Architecture for Industrial Robot Control.**
Marcelo V Garcia, Carlos A. Garcia, Edurne Irisarri, Federico Perez, Marga Marcos, Elisabet Estevez

TF-003654

10:56:30 **Open Source OPC UA PubSub over TSN for Realtime Industrial Communication.**
Julius Pfommer, Andreas Ebner, Siddharth Ravikumar, Bhagath Karunakaran

TF-005053

11:01 **Secure and Time-sensitive Communication for Remote Process Control and Monitoring.**
Thomas Kobzan, Sebastian Schriegel, Simon Althoff, Alexander Boschmann, Jens Otto, Jürgen Jasperneite

TF-005096

11:05:30 **Resource Allocation for a Wireless Coexistence Management System Based on Reinforcement Learning.**
Philip Soeffker, Dimitri Block, Nico Wiebusch, Uwe Meier

TF-005118

11:10 **Performance Analysis of a High-reliable Real-time Wireless Transmission System with Near Field Coupling.**

Niels Hendrik Fliedner, Uwe Meier, Thomas Neugebauer

TF-005126

11:14:30 **End-to-end Redundancy between Real-time I4.0 Components based on Time-sensitive Networking.**

Frederick Prinz, Michael Schoeffler, Armin Lechler, Alexander Verl

TF-005339

11:19 **A Privacy-aware Distributed Software Architecture for Automation Services in Compliance with GDPR.**

Tom Kittmann, Jens Lambrecht, Christian Horn

TF-005614

11:23:30 **An Experimental Evaluation of Redundancy in Industrial Wireless Communications.**

M.Carmen Lucas-Estañ, Juan Luis Maestre, Baldomero Coll-Perales, Javier Gozalvez, Iker Lluvia

TF-005673

11:28 **Towards a Fault-tolerant Architecture Based on Time Sensitive Networking.**

Ines Alvarez, Manuel Barranco, Julian Proenza

TF-005746

11:32:30 **Plug&Produce Integration of Components into OPC UA Based Data-space.**

Santosh Kumar Panda, Tizian Schröder, Lukasz Wisniewski, Christian Diedrich

TF-005762

11:37 **Designing a Bandwidth Management Scheme for Heterogeneous Virtualized Networks.**

Svetlana Girs, Mohammad Ashjaei

TF-006092

11:41:30 **Software-defined Networking as an Enabler for Future Industrial Network Management.**

Marco Ehrlich, Dennis Krummacker, Christoph Fischer, René Guillaume, Santiago Soler Perez Olaya, Anshu Frimpong, Hermann de Meer, Martin Wollschlaeger, Hans Schotten, Jürgen Jasperneite

TF-006203

11:46 **An Evaluation of the Applicability of OPC UA Publish Subscribe on Factory Automation Use Cases.**

Andreas Eckhardt, Sebastian Müller, Ludwig Leurs

TF-004723

11:50:30 **Mallocpool: Improving Memory Performance Through Contiguously TLB Mapped Memory.**
Marcus Jägemar

TF-005398

11:55 **Deterministic Hybrid Architecture with Time Sensitive Network (TSN) and Wireless Capabilities.**
Cristina Cruces, Raúl Torrego, Aitor Arriola, Iñaki Val

TF-006041

11:59:30 **Evaluation of Libraries and Typical Embedded Systems for ECDSA Signature Verification for Car2X Communication.**
Michael Kramer, Florian Gertmayer, Jürgen Hausladen

TF-004758

12:04 **Dual-rate Data-driven Control Using SIMO Representation.**
Takao Sato, Takuma Kusakabe, Nozomu Araki, Yasuo Konishi

TF-002933

12:08:30 **An Energy Measurement System for Characterization of Energy Harvesting Systems.**
Johannes Meyer, Hilko Meyer, Gerd von Cölln

TF-006076

12:13 **Vision System with High Performance Wide Angle Fovea Lens-detection Method of Camera Self-motion.**
Rei Murakami, Sota Shimizu

TF-005932

12:17:30 **Distributed Industrial Robot Control Using Environment Perception and Parallel Path Planning Cloud Services.**
Jonas Wassermann, Vojta Vonasek, Axel Vick

TF-006025

12:22 **Diagnosability Analysis of Bounded Petri Nets.**
Ning Ran, Jinyuan Hao, Zhou He, Carla Seatzu

Room: 3

Track 1.2: Analysis, Diagnosis, and Test

Chairs: Stefan Biffj and Gianmaria De Tommasi

TF-003352

14:00 **A Generic Static Analysis Framework for Domain Specific Languages.**
Avijit Mandal, Devina Mohan, Raoul Jetley, Sreeja Nair, Meenakshi D'Souza

TF-002976

14:25 **Static Flow Analysis of the Action Language for Foundational UML.**
Jean Malm, Federico Ciccuzzi, Jan Gustafsson, Björn Lisper, Jonas Skoog

TF-003816

14:50 **Automatic Generation of Formal Models for Diagnosability of DES.**
Roberto Nardone, Gianmaria De Tommasi, Nicola Mazzocca, Alfredo Pironti, Valeria Vittorini

TF-004405

15:15 **Towards Flexible and Automated Testing in Production Systems Engineering Projects.**
Dietmar Winkler, Kristof Meixner, Stefan Biffel

TF-002569

15:40 **ChronoSim: a Platform for Complex Systems Simulation and Testing.**
Alcidedey Chaves, Ricardo Maia, Carlos Belchior, Rui Araújo, Gonçalo Gouveia

Room: 5

Track 2.2: Industrial Protocols and IIOT

Chairs: Jürgen Jasperneite and Michael Weyrich

TF-002461

14:00 **REST based OPC UA for the IIoT.**
Rainer Schiekofner, Andreas Scholz, Michael Weyrich

TF-002283

14:25 **TSN-enabled OPC UA in Field Devices.**
Alexander Gogolev, Francisco Mendoza, Roland Braun

TF-002321

14:50 **PKI and User Access Rights Management for OPC UA Based Applications.**
Gajasri Karthikeyan, Stefan Heiss

TF-003719

15:15 **Network Formation for Industrial IoT: Evaluation, Limits and Recommendations.**
Dario Fanucchi, Barbara Staehle, Rudi Knorr

TF-002194

15:40 **Cloud-based Plug and Work architecture of IIC Testbed Smart Factory Web.**
Sascha Heymann, Ljiljana Stojanovic, Kym Watson, Nam Seungwook, Byunghun Song, Hans Gschossmann, Sebastian Schriegel, Jürgen Jasperneite

Room: 7

Track 8.2: Localization and Case Studies

Chairs: Tullio Facchinetti and Lukasz Wisniewski

TF-001236

14:00 **Experimenting Sensor Nodes Localization in WSN with UAV Acting as Mobile Agent.**
Juliano Grigolo, Leandro Becker

TF-003417

14:25 **A Comparison of RSSI Filtering Techniques for Range-based Localization.**
Moses Ayodele Koledoye, Daniele De Martini, Simone Rigoni, Tullio Facchinetti

TF-003743

14:50 **A Single Camera Inspection System to Detect and Localize Obstacles on Railways Based on Manifold Kalman Filtering.**
Federica Fioretti, Emanuele Ruffaldi, Carlo Alberto Avizzano

TF-004316

15:15 **Particulate Matter Monitoring in Mixed Indoor/Outdoor Industrial Applications: a Case Study.**
Edoardo Giusto, Renato Ferrero, Filippo Gandino, Bartolomeo Montrucchio, Maurizio Rebaudengo, Mingyang Zhang

TF-001643

15:40 **Incorporating Imperfect Information in Decentralized Agent-based Dynamic and Integrated Scheduling.**
Felix Gehlhoff, Timo Busert, Marcus Lewin, Alexander Fay

Room: 9

Special Session 03: Machine Learning for Data-driven Predictive Maintenance in the Industry 4.0 Framework

Chairs: Miguel Delgado Prieto, Luis Romeral Martinez, Roque A. Osornio Rios

TF-000809

14:00 **Early Fault Detection of Aircraft Components Using Flight Sensor Data.**
Junhong Zhou, Weili Yan

TF-001848

14:25 **Proposal of Feature Value Selection Method for Time-critical Learning.**
Kanami Yuyama, Hiroaki Nishi

TF-002011

14:50 **Fault Detection Assessment Architectures Based on Classification Methods and Information Fusion.**

Fernando Arévalo, Juan Rementería, Andreas Schwung

TF-003891

15:15 **Honeycomb Core Milling Diagnosis Using Machine Learning in the Industry 4.0 Framework.**

Lorraine Codjo, Mohamed Jaafar, Hamid Makich, Dominique Knittel, Mohammed Nouari

TF-004251

15:40 **Incremental Fault Detection and Identification Scheme applied electromechanical systems.**

Juan José Saucedo Dorantes, Miguel Delgado-Prieto, Jesús Adolfo Cariño Corrales, Roque Alfredo Osornio Rios, Luis Romeral Martínez, René de Jesús Romero Troncoso

Room: 3

Track 6.2: Computational Intelligence

Chairs: Helene Dörksen and Marco Porta

TF-000213

16:30 **Sustainable Multi-unit Process Plan Generation in a Reconfigurable Manufacturing Environment: a Comparative Study of Three Hybrid-meta-heuristics.**

Fayçal A. Touzout, Lyes Benyoucef

TF-002054

16:55 **Linear Classification of Badly Conditioned Data.**

Helene Dörksen, Volker Lohweg

TF-002348

17:20 **An Ensemble of Fuzzy Class-biased Networks for Product Quality Estimation.**

Shanmugasivam Pillai, Naveen John Punnoose, Prahlad Vadakkepat, Ai Poh Loh, Kee Jin Lee

TF-002968

17:45 **Laser Seam Welding optimization Using Inductive Transfer Learning with Artificial Neural Networks.**

Joao Reis, Gil Gonçalves

Room: 5

Track 3.2: Scheduling in Real-time and Networked Embedded Systems

Chairs: Moris Behnam and Gaetano Patti

TF-000817

16:30 **Weakly-hard Real-time Guarantees for Weighted Round-robin Scheduling of Real-time Messages.**

Zain A. H. Hammadeh, Rolf Ernst

TF-001996

16:55 **Enforcing Quality of Service through Hardware Resource Aware Process Scheduling.**

Marcus Jägemar, Sigrid Eldh, Andreas Ermedahl, Moris Behnam, Björn Lisper

TF-000264

17:20 **Genetic Algorithm for Scheduling Time-triggered Traffic in Time-sensitive Networks.**

Maryam Pahlevan, Roman Obermaisser

TF-000329

17:45 **An Empirical Study on the Adequacy of MBPTA for Tasks Executed on a Complex Computer Architecture with Linux.**

Karila Palma Silva, Luis Fernando Arcaro, Daniel Bristot de Oliveira, Romulo Silva de Oliveira

Room: 7

Track 9.2: Complex Manufacturing Systems and Security

Chairs: Dorel Aiordachioaie and Jose Luis Flores Barroso

TF-000027

16:30 **Rolling Element Bearing Fault Detection Using Vibrating Signals Segmentation.**

Theodor D. Popescu, Dorel Aiordachioaie

TF-004103

16:55 **Design of an Intelligent Handling System Using a Multi-objective Optimization Approach.**

Tommaso Bonini, Andrea Forni, Mauro Mazzolini

TF-004189

17:20 **MTF-storm: a High Performance Fuzzer for Modbus/TCP.**

Konstantinos Katsigiannis, Dimitrios Serpanos

TF-002925

17:45 **Runtime Vulnerability Discovery as a Service on Industrial Internet of Things (IIoT) Systems.**

Jose Luis Flores, Imanol Mugarza

Room: 9

Track 10.1: Sensor Data Management in Cyber-physical Systems

Chairs: Markus Rentschler and Holger Voos

TF-001074

16:30 **Vulnerability Analysis of Cyber Physical Systems under False-data Injection and Disturbance Attacks.**

Benjamin Gérard, Souad Bezzaoucha Rebaï, Holger Voos, Mohamed Darouach

TF-002917

16:55 **A Conflict-based Drift Detection and Adaptation Approach for Multisensor Information Fusion.**

Christoph-Alexander Holst, Volker Lohweg

TF-004057

17:20 **IoT-based Distributed Networked Control Systems Architecture.**

Carlos Fernando Oliveira Cabeça Neves, Ubirajara Franco Moreno, Adão Boava

TF-001619

17:45 **Validation of a CoAP to IEC 61850 Mapping and Benchmarking vs HTTP-REST and WS-SOA.**

Markel Iglesias-Urkia, Diego Casado-Mansilla, Simon Mayer, Aitor Urbieta

Friday · September 7th, 2018

Room: 3

Track 1.3: Explicit Use of Semantics

Chairs: Udayanto Dwi Atmojo and Alexander Fay

TF-002941

10:25 AutomationML Mechatronic Models as Enabler of Automation Systems Engineering: Use-case and Evaluation.
Milan Vathoopan, Hendrik Walzel, Waldemar Eisenmenger, Benjamin Brandenbourger, Alois Zoitl

TF-001457

10:50 Challenges in Skill-based Engineering of Industrial Automation Systems.
Somayeh Malakuti, Patrick Zimmermann, Julian Grothoff, Constantin Wagner, Jürgen Bock, Michael Weser, Pierre Venet, Mathias Wiegand, Andreas Bayha

TF-001171

11:15 From Heterogeneity to Uniformity in Building Automation Systems via Semantic-based Engineering.
Somayeh Malakuti, Johannes Schmitt, Thomas Gamer

TF-004367

11:40 Behavior-driven Development for Real-time Embedded Systems.
Amir Soltani Nezhad, Johan J. Lukkien, Rudolf H. Mak

TF-003115

12:05 On Achieving Reliable Communication in IEC 61499.
Udayanto Dwi Atmojo, Valeriy Vyatkin, Zoran Salcic

Room: 5

Track 9.3: Complex Automation Systems

Chairs: Rainer Drath and Markus Rentschler

TF-000167

10:25 Vendor-independent Modeling and Exchange of Fieldbus Topologies with AutomationML.
Markus Rentschler, Rainer Drath

TF-002828

10:50 Design Pattern for Decomposition or Aggregation of Automation Systems into Hierarchy Levels.
Benjamin Brandenbourger, Friedrich Durand

TF-000841

11:15 **Digitalization of the IEC PAS 61311 Standard with AutomationML.**
Rainer Drath, Idar Ingebrigtsen

TF-000833

11:40 **Heterogeneous ITS Architecture for Manned and Unmanned Cars in Suburban Areas.**
Salma Emara, Ayah Elewa, Omar Wasil, Kholoud Moustafa, Nada Abdel, Khalek, Ahmed H. Soliman, Hassan Halawa, Ramez Daoud, Hassanein Amer, Tarek Refaat

TF-003409

12:05 **H[∞] Adaptive Fuzzy Control Approach Applied to Antilock-braking Systems Over a CAN Network.**
Carlos Belchior, Rui Araújo, Jérôme Mendes, Alcidney Chaves, Ricardo Maia

Room: 7

Track 2.3: Wireless Communications

Chairs: Lucia Lo Bello and Stefano Scanzio

TF-002399

10:25 **Soft-handover Algorithm for Hybrid Industrial Wireless Sensor and Actuator Networks.**
Zaloa Fernández, Óscar Seijo, Iñaki Val, Mikel Mendicute

TF-003964

10:50 **Experimental Evaluation of Low-latency Diversity Modes in IEEE 802.15.4 Networks.**
Brian Kilberg, Craig Schindler, Arvind Sundararajan, Alex Yang, Kristofer Pister

TF-004146

11:15 **Novel Approach for Wireless Commissioning and Assisted Process Development Based on Bluetooth Low Energy.**
Christoph Pallasch, Alexander Peitz, Werner Herfs, Anke Schmeink, Guido Dartmann

TF-001201

11:40 **A Prototype Implementation of Wi-Fi Seamless Redundancy with Reactive Duplication Avoidance.**
Gianluca Cena, Stefano Scanzio, Adriano Valenzano

TF-003026

12:05 **Software-defined Networking for Dynamic Control of Mobile Industrial Wireless Sensor Networks.**
Lucia Lo Bello, Alfio Lombardo, Sebastiano Milardo, Gaetano Patti, Marco Reno

Room: 9

Work-in-Progress · WiP 2 [T4, 5, 6, 7, 9]

Chairs: Marina Indri and Cristian Mahulea

TF-005444

10:25 **Industrial Application of a MDM-based Approach for Generation and Impact Analysis of Adaptation Options - a Case Study.**

Xuan Luu Hoang, Alexander Fay, Philipp Marks, Michael Weyrich

TF-003328

10:29:30 **Key Performance Indicators in Manufacturing Operations Management: a Case Study of the ISO 22400-standard Applied at Volvo Cars.**

Li Zhu, Jacob Mejvik, Charlotta Johnsson, Kristofer Bengtsson, Hakan Pettersson, Martina Varisco, Massimiliano M. Schiraldi

TF-005002

10:34 **An Improved Genetic Algorithm with Local Search for Solving the DJSSP with New Dynamic Events.**

Kaouther Ben Ali, Achraf Jabeur Telmoudi, Said Gattoufi

TF-005231

10:38:30 **Stealthy Attacks for Partially-observed Discrete Event Systems.**

Qi Zhang, Carla Seatzu, Zhiwu Li, Alessandro Giua

TF-005312

10:43 **Scheduling and Situation Adaptive Operation for Energy Efficiency of Hot Press Forging Factory.**

Seyoung Kim, Kwang Ryel Ryu

TF-005665

10:47:30 **A Semi-automatic System for Grit-blasting Operation in Shipyard.**

Xue Li, Ayu Aaron Alexander, Ning Liu, Sibao Wang, Noor Hazman Bin Sulaimie, Fook Seng Wong, Wen Feng Lu, Chee-Meng Chew

TF-005991

10:52 **PFS/PN Technique to Model Industry 4.0 Systems Based on RAMI 4.0.**

Marcos A. Pisching, Marcosiris A. O. Pessoa, Fabrício Junqueira, Paulo E. Miyagi

TF-004707

10:56:30 **Tool and Technology Independent Function Interfaces by Using a Generic OPC UA Representation.**

Manuel Kaspar, Jürgen Bock, Yevgen Kogan, Pierre Venet, Michael Weser, Uwe E. Zimmermann

TF-005347

11:01 **Exploiting System Model for Securing CPS: the Anomaly Based IDS Perspective.**
Riccardo Colelli, Stefano Panzieri, Federica Pascucci

TF-005975

11:05:30 **Synthesis of Controllers from Finite State Stack Machine Diagrams.**
Daniel Rivas, Pragna Das, Joaquín Saiz-Alcaine, Lluís Ribas-Xirgo

TF-006173

11:10 **Remarks on Adaptive-type Direct Controller Using Recurrent Quaternion Neural Network.**
Kazuhiko Takahashi

TF-005029

11:14:30 **Evolutionary Resource Allocation Optimization for Wireless Coexistence Management.**
Nico Wiebusch, Uwe Meier

TF-005142

11:19 **Information Retrieval in Industrial Production Environments.**
Stefan Windmann, Oliver Niggemann

TF-005169

11:23:30 **Mackerel Classification using Global and Local Features.**
Yoshito Nagaoka, Tomo Miyazaki, Yoshihiro Sugaya, Shinichiro Omachi

TF-005541

11:28 **Correction of Thread Position Mismatch in High Precision CNC Sewing.**
Tarek Stiebel, Dieter Geller, Dorit Merhof

TF-005622

11:32:30 **Feature Extraction for a Conditioning Monitoring System in a Bottling Process.**
Martyna Bator, Christian Wissel, Alexander Dicks, Volker Lohweg

TF-005711

11:37 **Development of a Vision System for TIG Welding - a Work-in-progress Study.**
Richard French, Will Yeadon, Gabriel Kapellmann, Hector Marin-Reyes

TF-006254

11:41:30 **Novelty Detection Based Condition Monitoring Scheme applied to Electromechanical Systems.**
Miguel Delgado-Prieto, Jesús Adolfo Cariño Corrales, Juan José Saucedo Dorantes, Roque Alfredo Osornio Rios, Luis Romeral Martínez, René de Jesús Romero Troncoso

TF-005177

11:46 **Holo Pick'n'Place.**
Martin Rudorfer, Jan Guhl, Paul Hoffmann, Jörg Krüger

TF-004839

11:50:30 **Holonic Overlays in Cyber-physical System of Systems.**
*Andrea Bonci, Massimiliano Pirani, Alessandro Carbonari, Berardo Naticchia,
Alessandro Cucchiarelli, Sauro Longhi*

TF-005215

11:55 **Influence Maximization by Link Activation in Social Networks.**
Wenjing Yang, Leonardo Brenner, Alessandro Giua

TF-005223

11:59:30 **A Smart TLVC-based Traffic Light Scheduling for Preventing YLD-related Accidents
in Smart City.**
Trung-Thanh Ngo, Dong-Seong Kim

TF-005355

12:04 **Towards Transforming an Industrial Automation System from Monolithic to
Microservices.**
Santonu Sarkar, Gloria Vashi, Abdulla Pp

TF-005363

12:08:30 **Service Level Agreements for Safe and Configurable Production Environments.**
*Mohammad Ashjaei, Kester Clegg, Lorenzo Corneo, Richard Hawkins, Omar Jaradat,
Vincenzo Massimiliano Gulisano, Yiannis Nikolakopoulos*

Room: 3

Track 3.3: Timing Analysis in Real-time and Networked Embedded Systems

Chairs: Gaetano Patti and Jean-Luc Scharbag

TF-004456

14:00 **Hardware-in-the-loop Based WCET Analysis with KLEE.**
Marcus Lindner, Jorge Aparicio, Henrik Tjäder, Per Lindgren, Johan Eriksson

TF-004308

14:25 **Integrating Offset in Worst Case Delay Analysis of Switched Ethernet Network with
Deficit Round Robbin.**
Aakash Soni, Xiaoting Li, Jean-Luc Scharbag, Christian Fraboul

TF-002305

14:50 **Latency Analysis for Data Chains of Real-time Periodic Tasks.**
Tomasz Kloda, Antoine Bertout, Yves Sorel

TF-001791

15:15 **A Sensitivity Analysis for Mixed Criticality: Trading Criticality with Computational Resource.**
Luca Santinelli, Zhishan Guo

Room: 5

Track 1.4: Platforms and Architectures

Chairs: Roberto Oboe and Valeriy Vyatkin

TF-000418

14:00 **Prosa/G: an Architecture for Agent-based Manufacturing Execution.**
Dennis Jarvis, Jacqueline Jarvis, Andrei Kalachev, Gulnara Zhabelova, Valeriy Vyatkin

TF-004391

14:25 **Container Live Migration for Latency Critical Industrial Applications on Edge Computing.**
Keerthana Govindaraj, Alexander Artemenko

TF-002372

14:50 **Alternatives for Flexible Deployment Architectures in Industrial Automation Systems.**
Sten Gruener, Somayeh Malakuti, Johannes Schmitt, Tarik Terzimehic, Monika Wenger, Haitham Elfaham

TF-001198

15:15 **Implementation and Evaluation of IEC 61499 Basic Function Blocks in Erlang.**
Laurin Prenzel, Julien Provost

TF-000086

15:40 **Cloud IEC 61850: a Case Study of a Software Defined Protection, Automation & Control System.**
Roger Ferreira, Rômulo Oliveira

Room: 7

Track 4.3: Algorithms for the Scheduling of Flexible Manufacturing Systems

Chairs: Dimitri Lefebvre and Antje Rogalla

TF-004294

14:00 **An Imperialist Competitive Algorithm for a Real-world Flexible Job Shop Scheduling Problem.**
Willian Tessaro Lunardi, Holger Voos, Luiz Henrique Cheri

TF-002844

14:25 Tailored Genetic Algorithm for Scheduling Jobs and Predictive Maintenance in a Permutation Flowshop.

Asma Ladj, Fatima Benbouzid Si Tayeb, Christophe Varnier

TF-001139

14:50 Multi-resource Sharing Scheduling Considering Uncontrollable Environment.

Mahya Rahimi, Emil Dumitrescu, Eric Niel

TF-002097

15:15 Evaluation of Stochastic Bounds on the Remaining Completion Time of Products in a Buffered Sequential Workflow.

Marco Biagi, Laura Carnevali, Kumiko Tadano, Enrico Vicario

TF-004111

15:40 Contributions to the Control of Time-weighted Systems.

Thiago Monteiro Tuxi, Antonio Eduardo Carrilho da Cunha

Room:9

Track 8.3: Modeling and Simulation

Chairs: Luis Almeida and Wolfgang Kastner

TF-000302

14:00 Predictive Modeling for Advanced Virtual Metrology: a Tree-based Approach.

Yang Liu, Xin Li

TF-004499

14:25 Assessing the ESP8266 WiFi module for the Internet of Things.

João Mesquita, Diana Guimarães, Carlos Pereira, Frederico Santos, Luis Almeida

TF-004634

14:50 A System Level Simulator for Heterogeneous Wireless Sensor and Actuator Networks.

Ryan Kurte, Zoran Salcic, Kevin Wang

TF-001945

15:15 Security and Privacy Implementations within the AnyPLACE Energy Management Solution.

Christian Kudera, Viktor Ullmann, Markus Kammerstetter, Wolfgang Kastner

Room: 3

Track 5.3: Control of Industrial units

Chairs: Marco Faroni and Jorge Hernández-Ambato

TF-002992

16:30 **Comparison of Speed Control of PMSM using PI and Fuzzy Controller.**
Ilber Puci, Ramon Vilanova, Carles Pedret

TF-004618

16:55 **Classic Controllers Design Applied to Temperature Control for a Plastic Thermoforming Machine.**
Jorge Hernandez-Ambato, Jesus Rodriguez-Flores, Jose Cortez-Llanganate, Fausto Cabrera-Aguayo

TF-001104

17:20 **Model Predictive Control for Operator-in-the-loop Overhead Cranes.**
Marco Giacomelli, Marco Faroni, Domenico Gorni, Alberto Marini, Luca Simoni, Antonio Visioli

Room: 5

Track 4.4: Novel Approaches for Modelling with Petri Nets

Chairs: Dimitri Lefebvre and Bonhomme Patrice

TF-001465

16:30 **Control Design for Timed Petri Nets Based on LMI and Structure Expansion.**
Alioune Mbaye, Dimitri Lefebvre, Francesco Basile

TF-001473

16:55 **Moving Average Control Chart for the Detection and Isolation of Temporal Faults in Stochastic Petri Nets.**
Sara Rachidi, Edouard Leclercq, Dimitri Lefebvre

TF-001066

17:20 **Modeling Hybrid Manufacturing Systems Using T-TPN with Buffers.**
Ghassen Cherif, Edouard Leclercq, Dimitri Lefebvre

TF-001244

17:45 **Towards a Decentralized State Estimation of P-time Petri Net Systems.**
Bonhomme Patrice

Room: 7

Track 7.3: Specific Sensors and Applications

Chair: Andrea Bonci

TF-003158

16:30 **Sampling-based Tube Following for Redundant, Planar Robotic Manipulators.**
Jeroen De Maeyer, Mark Versteyhe, Eric Demeester

TF-003042

16:55 **RiserSure: Automated Deployment of Digital Radiography for Subsea Inspection of Flexible Risers.**
Aman Kaur, Bingyin Ma, Michael Corsar, Tariq Sattar, Alan Clarke, Carl Forrest, Ian Nicholson

TF-003875

17:20 **An Accurate Low-cost Crackmeter with LoRaWAN Communication and Energy Harvesting Capability.**
Tommaso Polonelli, Davide Brunelli, Marco Guermandi, Luca Benini

Room: 9

Track 10.2: Cyber-physical Systems in Industrial and Manufacturing Applications

Chair: Tullio Facchinetti

TF-002909

16:30 **Complexity of Design Space Exploration for Building Automation Systems and Comparison of Designing Strategies.**
Matthias Lehmann, Florenz Schäfer, Jessica Sattler, Klaus Kabitzsch

TF-004006

16:55 **KoMMDia: Dialogue-driven Assistance System for Fault Diagnosis and Correction in Cyber-physical Production Systems.**
Julian Rahm, Markus Graube, Romy Müller, Tilman Kläeger, Luise Schegner, Andre Schult, Rica Bönsel, Sebastian Carsch, Lukas Oehm, Leon Urbas

TF-001902

17:20 **AGV Congestion Avoidance Using Threshold-modulating Oscillator in Cellular Manufacturing.**
Takehiro Itou, Hisaya Wakayama, Konishi Keiji, Yoshiharu Maeno, Kumiko Tadano, Masatsugu Ogawa

TF-001988

17:45 **Online Class Imbalance Learning for Quality Estimation in Manufacturing.**
Kee Jin Lee

CITY MAP

- | | |
|---|--|
| <p>1. POLITECNICO DI TORINO
MAIN CAMPUS · AULA MAGNA
Plenary Sessions
<i>Corso Duca degli Abruzzi, 24</i>
Conference venue</p> | <p>2. POLITECNICO DI TORINO
CAMPUS CITTADELLA POLITECNICA
CORTE INTERRATA ROOMS · Parallel Sessions
<i>Corso Castelfidardo, 34/a</i>
Conference venue</p> |
| <p>3. CASTELLO DEL VALENTINO
<i>Viale Mattioli, 39</i>
Welcome cocktail
Reception venue</p> | <p>4. MAUTO
National Car Museum
<i>Corso Unità d'Italia, 70</i>
Social dinner venue</p> |



SOCIAL EVENTS

Welcome cocktail reception

The welcome cocktail reception will take place on Wednesday September 5th as of 19.30 at the Castello del Valentino, viale Mattioli 39 (a 16th century royal residence now housing the Politecnico's Faculty of Architecture - *see city map at page 43*).

Admittance will be limited to ticket holders. Regularly enrolled participants can collect their invitation card at the conference registration desk.

Bus shuttle service will be provided *[departure from the conference venue at 19:00]*.

Social dinner

The social dinner will be held on Thursday September 6th at the MAUTO (National Car Museum, www.museoauto.it), a fascinating, interactive museum which was recently renovated with a modern, innovative design. A real architectural work of art. A jewel for all car lovers.

This social event will be a fantastic occasion to discover one of Torino's most interesting cultural and touristic sites and enjoy the well-known Italian food and wine tradition.

Admittance will be limited to ticket holders. Regularly enrolled participants can collect their invitation card at the conference registration desk. Free visit to the Museum will be included.

Bus shuttle service will be provided *[departure from the conference venue at 18:30]*.

CONFERENCE INFORMATION

The conference areas

The conference will be held at the Politecnico di Torino.

Conference facilities will be located both in the Politecnico main building (pedestrian access at corso Duca degli Abruzzi 24) and in the Aule I (ROOMS I) of the new area called Corte Interrata (pedestrian access at Corso Castelfidardo 34/a) situated at a few minutes' walking distance from the main building.

Meeting rooms

Plenary sessions will be held every day at the Aula Magna, the main university congress room located in the Politecnico main building.

Parallel sessions will take place in the modern teaching rooms (ROOMS I) located at the so-called Corte Interrata (pedestrian access at Corso Castelfidardo 34/a). This area will also host catering services and poster areas.

Instructions for speakers

Speakers are required to be in the meeting room at least 10 minutes before their session begins.

Sessions are tightly scheduled, therefore the allotted time must be strictly observed.

Please apply to your session chairpersons for further information on the session schedule.

Presentations on USB stick must be loaded on the PC of the conference room before the beginning of the session (e.g. during breaks). Computers equipped with PowerPoint 2010 are available in every room. For any further information on the audiovisual means, please apply to the secretariat staff in good time.

Work-in-Progress papers

Work-in-progress papers will be presented in two sessions, in Room 9, on Thursday September 6th (WiP 1) and Friday September 7th (WiP 2), respectively. Each author has 4 ½ minutes assigned for the presentation (Q&A must be postponed to the poster session). Please have a look to the conference program to find the assigned slot. The room is equipped with a PC with PowerPoint and Acrobat Reader. All presentations (ppt or pdf, less than 250 MB) must be uploaded on a cloud storage by September 4th.

- Presentations of WiP 1 must be uploaded here: <https://tinyurl.com/y7rrz4db>
- Presentations of WiP 2 must be uploaded here: <https://tinyurl.com/y89xv8ul>

Those experiencing difficulties in uploading their presentation may try to send it via e-mail to one of the following addresses:

- WIP1.ETFA2018@gmail.com for WiP 1,
- WIP2.ETFA2018@gmail.com for WiP 2.

Please limit the file size to 25 MB, in this case. The file containing the presentation must be named with the paper code [e.g. TF-00xxxx.ppt or TF-00xxxx.pdf].

Note: after September 4th, authors of missing presentations will be contacted individually by the organizing committee.

Poster display

Posters relative to the Work-in-Progress papers will be displayed in the poster area located at the Corte Interrata [see floor map at page 16]. Maximum allowed poster size is cm 70 width x cm 100 height.

Authors of the WiP1 papers (Tracks 1, 2, 3, 8 & 10) can mount their posters on Thursday September 6th as of 8.00. As for WiP 2 papers (Tracks 4, 5, 6, 7 & 9), the authors can mount their posters on Friday September 7th as of 8.00. Posters must be removed on the same day of the presentation by 16.00. If not, they will be disposed off. Paper code numbers indicate their position on the display board.

Authors are invited to be available for Q&A during the coffee and lunch breaks, by standing near their poster. The conference organization cannot be deemed responsible for lost or stolen posters.

For more information please apply to the secretariat desk.

Student and Young Professionals Award

Each of the three Awardees of the IES-SYPA competition at ETFA 2018 will give a 3-minute presentation in Room 7 on September 5th, from 1:15 pm to 2 pm.

Their presentation will be preceded by an introduction on the Student and Young Professional activities and IES at large, provided by the IES President, Prof. Xinghuo Yu.

All conference participants are cordially invited to congratulate these young colleagues.

Registration

Pre-registered participants can collect their conference kit and personal name badge at the organizing secretariat desk located in the foyer of the Aula Magna (Politecnico main building, ground floor, entrance at corso Duca degli Abruzzi 24) as of Wednesday September 5th, 8:00.

A secretariat desk will also be available during the parallel sessions in the lobby of the Corte Interrata (ROOMS I).

Badges

All delegates and exhibitors are kindly requested to always wear their name badge. Entrance to meeting rooms will be limited to regularly enrolled participants only.

Language

Official language will be English. No simultaneous translation will be provided.

Coffee breaks and lunches

Coffee points will be located close to the meeting rooms at the Corte Interrata. Buffet lunches will be served in the catering area (outside courtyard or building lobbies) at the Corte Interrata (ROOMS I). See conference programme for coffee break and lunch times.

Tourist information

An information point of the city tourist agency TurismoTorino will be available at the conference venue, Corte Interrata Rooms I, on Wednesday September 5 from 10:00 to 17:00.

The main tourist information point is located in the city centre (Piazza Castello) and it is open from Monday to Sunday from 9.00 to 19.00. Phone: +39 011 535181.

Banks and post office

The nearest bank with cash dispenser is the Banca Unicredit located inside the Politecnico main building. Opening times, from Monday to Friday: from 8.30 to 13.30 and from 14.40 to 16.10.

The nearest post office is located inside the Politecnico main building. Opening times, from Monday to Friday: from 8.30 to 14.00.

Medical service

A medical service for first aid (infermeria) is available in the Politecnico main building.

Opening times, from Monday to Friday: from 8.00 to 18.00.

Shopping

Torino offers both luxury and characteristic shops. Most of the luxury shops are located in the city centre on via Roma: fashion boutiques, jewelry shops, perfume shops and food and wine stores which feature the best of the regional products.

Eating

Torino is well known for its local cuisine, which is considered among the best in Italy.

Restaurants are usually open from 12.00 to 14.30 and from 19.30 to 22.30.

Museums

Torino offers a wide choice of museums (more than 40): from the Egyptian Museum, the most important collection in the world after Cairo, to the Sabauda (Savoyard) picture gallery, from the Cinema Museum to the Automobile Museum. Museums are usually open from Tuesday to Sunday and closed on Mondays.

How to get to

... the conference venue

The Politecnico is located close to the city centre.

It can be reached from the city centre in a short time by metro or bus.

The closest metro station is Vinzaglio (about 10 minutes' walking distance from both the Politecnico main building and the parallel sessions' venue the new campus Cittadella Politecnico).

Many bus and tram lines have stops at the Politecnico.

Bus lines 58, 33, 12 and tram line 10 stop near the Politecnico main building entrance (corso Duca degli Abruzzi 24).

Bus line 12 stops in front of the Cittadella Politecnico entrance (corso Castelfidardo 34/A).

Bus line Star 1 stops at about 300 metres from the same entrance.

Other bus or tram lines (e.g. lines 33, 42 and 15) have also stops not far from the Politecnico.

And if you like to walk, it takes about 30 minutes from Porta Nuova railway station in the city centre.

... the welcome cocktail venue, Castello del Valentino

The Castello del Valentino is located in the Valentino's park alongside the river Po.

It can be reached in about 15 minutes by tram (line 9) from the city centre (tram stop close to Porta Nuova railway station). It takes about 30 minutes by bus or tram from the Politecnico.

Tram line 16CS and bus line 67 also have stops close to the Castle.

Bus shuttle service from the conference venue will be provided (*departure from the Cittadella Politecnico entrance, corso Castelfidardo 34/A, at 19:00*).

... the social dinner venue, the MAUTO, National Car Museum

the MAUTO - National Automobile Museum "Giovanni Agnelli" - Corso Unità d'Italia, 40 - can be reached on foot in about 10-15 minutes from the closest subway station Lingotto.

Bus shuttle service from the conference venue will be provided (*departure from the Cittadella Politecnico entrance, corso Castelfidardo 34/A, at 18:30*).

For taxi, call 011 5730 or 011 5737.

Liability - Registered conference participants agree that neither the Organizing Committee nor the conference Secretariat are liable or assume any responsibility for damage or injuries to persons or property during the conference. Participants are advised to arrange for their own health, travel and personal insurances. The conference organization does not cover individuals against cancellation of bookings, theft or damage to belongings.

Disclaimer - All best endeavours will be made to present the conference programme as published. However, the conference Organizing Committee and the Secretariat reserve the right to alter or cancel, without prior notice, any arrangements, timetables, plans or other items relating directly or indirectly to the conference, for any cause beyond our reasonable control. The conference Organizing Committee and the Secretariat are not liable for any loss or inconvenience caused as a result of such alteration.

Local Organizing Secretariat



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