ETFA'2012

17th IEEE International Conference on Emerging Technologies & Factory Automation

September 17-21, 2012, Kraków, Poland

Sponsored by: *AGH University of Science and Technology at Kraków, and IEEE Industrial Electronics Society*

Aim: The aim of the conference is to bring together researchers and practitioners from the industry and academia and provide them with a platform to report on recent advances and developments in the newly emerging areas of technology, as well as actual and potential applications to industrial and factory automation.

Solicited Papers: Research papers reporting on new developments in technological sciences. Industry and development papers reporting on actual developments of technology, products, systems and solutions. Tutorial and survey papers. In addition, ETFA2012 solicits special session proposals to stimulate in-depth discussions in special areas relevant to the conference theme.

Topics within the scope of the conference include:

- **Information Technology in Automation**: IT Modeling techniques (UML, Object-Orientation, Agents, Service Oriented Architectures,...) for automation systems ; Data Modeling (CAEX, AutomationML, OPC UA,...); Virtualization at the factory level, digital factory; Programming languages (IEC 61131, IEC 61499,...); Integration with MES and ERP systems (Databases, Semantic Web Services) ; Vertical Integration: Web-based Setup, Maintenance and Configuration; Tool chains, platforms, and frameworks for Software Design and Development; Security in factory, home and building Automation; Network Integration in Automation Systems (heterogeneous networks, wired/wireless,...).
- **Industrial Communication Systems:** Implementation issues; Message scheduling; Performance analysis; Dependability and fault tolerance aspects; System design and architecture; Self-configurable systems; Integration support; Fieldbus networks; Real-Time Ethernet Networks; Intranet and Internet; Wireless networks; Hybrid (wired/wireless) networks; Safety buses; Sensor networks; Automotive networks; Building automation networks; Process control networks; Networked control systems.
- **Real-Time and (Networked) Embedded Systems:** Real-Time Computing; Real-Time Operating Systems; Real-Time Communications; Networked Embedded Systems Technology; Wireless Sensor Networks; Cyber Physical Systems; Design and Implementation; Design Methodologies and Tools; Components and Platforms; Models of Computation and Formal Methods; Hardware/Software Co-Design; Energy Management; Data Integration and Fusion; Communication Modes; Quality of Service Control; Case Studies.
- **Automated Manufacturing Systems:** Formal Modeling and Analysis of Manufacturing Systems; Scheduling, Simulation, Queuing Systems and Petri Nets in Manufacturing Systems; Synthesis and Analysis Techniques, Performance Evaluation and Reliability; Discrete and Continuous Industrial Automation Systems; Automated Manufacturing Systems and Enterprise Integration; Application of Service-Oriented Technologies; Test Cases, Benchmarks and Tools; Applications and Experiences in Practice; Recent Developments in Standardization.
- **Industrial Control:** Process Control; Equipment Control; Intelligent Control; Supervisory Control; Industrial Control Implementation; Discrete and Continuous Automation System; Equipment and Process Monitoring; Fault Detection and Management; Process Modelling and Optimization; Performance Assessment of Control Systems; Control Applications; Large-Scale Systems.
- **Computational Intelligence and Modern Heuristics in Automation:** Intelligent Systems and Control, Modern Heuristics, and Data Mining in automation and industrial applications; Neural/Fuzzy/Evolutionary approaches in automation; Modern heuristics methods in factory automation based on predictive, adaptive control, recognition, navigation, motion control, competitive, self-organizing learning, and clustering; Computational Intelligence in security, reliability, and fault-tolerance in automation; Ant colonies optimization and swarm intelligence in automation; Machine learning, Support Vector Machines, Expert Systems.
- **Intelligent Robots & Systems:** Cognitive robotics; Cooperative and collaborative robotics; Distributed robotic architectures; Human-robot interaction; Integrated intelligence; Intelligent robot assistants; Intelligent embedded systems; Natural language grounding; Network robotics; Perception, control and manipulation for intelligent robots and systems; Planning and failure recovery; Reasoning under uncertainty; Robot learning; Robot vision; Usability studies.

Conference Format: The conference will comprise multi-track sessions for regular papers, to present significant and novel research results with a prospect for a tangible impact on the research area and potential implementations; work-in-progress (WIP) sessions; panel discussions on the state-of-the-art and emerging trends, involving leading experts from industry and academia; and public discussion sessions moderated by leading experts in the field of industrial automation systems.

Submission of Papers: The working language of the conference is English. Two types of submissions are solicited. Long Papers limited to 8 double column pages in a font no smaller than 10-points. Work-in-Progress and Industry practice limited to 4 double column pages in a font no smaller than 10-points. Manuscripts must be submitted electronically in PDF format, according to the instructions contained in the Conference web site.

Best Paper Award: Best paper awards in Factory Automation and Emerging Technologies will be presented at the conference banquet dinner. Authors of outstanding papers will be invited to submit a revised version of their papers for publication in a special section in IEEE Transactions on Industrial Informatics.

Paper Acceptance: Each accepted paper must be presented at the conference by one of the authors. The final manuscript must be accompanied by a registration form and a registration fee payment proof. All conference attendees, including authors and session chairpersons, must pay the conference registration fee, and their travel expenses.

No-show Policy: The ETFA 2012 Organizing Committee reserves the right to exclude a paper from distribution after the conference at IEEE Xplore if the paper is not presented at the conference.

Author's Schedule:

Deadline for submission of long and special sessions papers: March 25, 2012

Notification of acceptance of long papers: May 30, 2012

Deadline for submission of work-in-progress papers and Industry practice: June 8, 2012

Notification of acceptance of work-in-progress papers and Industry practice: July 1, 2012

Deadline for submission of final manuscripts long and special sessions: July 8, 2012

Deadline for submission of final manuscripts work-in-progress papers and Industry practice: July 8, 2012

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Conference website
http://www.etfa2012.org

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AGH University of Science and Technology

Kraków (Cracow) is one of the most beautiful and popular cities in Europe thanks to a fine architectural heritage, outstanding artistry and royal patronage. The city is ranked among European metropolises whose unique image has been shaped through the creative efforts of representatives of many nationalities. In the Middle Ages, German settlers brought the best of their guild traditions here. During the Renaissance, Italians brought the wealth of the magnificent achievements of art and architecture of the time to the city. Throughout the centuries, Jews were here to cultivate commerce and crafts. The waves of the immigrants were drawn to the foot of Wawel, attracted by unique tolerance and interesting culture. In the Jagellonian era, the 15th and the 16th centuries, Kraków was the capital of one of the most powerful and extensive European countries. At that time, the republic stretched from the Baltic Sea to the Black Sea coast. The city, open to all the nations which inhabited the vast country became the sanctuary of priceless national mementoes, a treasury of Polish science and culture. Its features were carved by the time, both through the abundance of architectural treasures and the sequence of memorable historical events. There are many, in fact innumerable reasons, why one should and must visit Kraków. There are phenomena here of which no other city throughout the world can boast.



In 1364, King Casimir III the Great issued a privilege establishing the first Polish university (Jagiellonian University) which at the same time is the second-oldest university east of the Rhine, after Prague's university. Only few original facilities of Medieval universities have survived to the present day. Outside England, only Salamanca, Spain, Bologna, Italy, and Prague, Czech Republic, can boast such universities. Cracow university has lasted for over six hundred years at the same location. Among the university graduates were Nicolaus Copernicus, the creator of the heliocentric system, the Pope John Paul II, Ignacy Łukasiewicz, the deviser of the first method of distilling kerosene from seep oil, Carl Menger, founder of the Austrian School of economics, Karol Olszewski the physicist and chemist; the first to liquefy oxygen, nitrogen and carbon dioxide from the atmosphere, Leo Sternbach, the chemist; inventor of the benzodiazepine, Ivo Andric and Wisława Szymborska, Nobel laureates in literature.

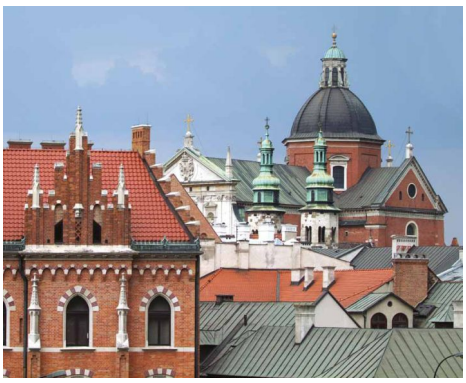


photo: www.krakow.pl

AGH University of Science and Technology is one of the oldest and biggest Polish technical universities with 90 years of scientific experience, 15 faculties and Multidisciplinary School of Engineering in Biomedicine, 33 fields of study, more than 170 specializations, and with over 35000 students, over 500 doctoral students and over 2000 researchers including 227 full professors. Over 150 000 graduates have passed through the halls our university.
AGH-UST cooperates with 190 academic centers from 50 countries, and with numerous companies (e.g. IBM, Valeo, Comarch, Motorola, EDF, L.G., Philips, RWE Power AG, Lafarge, Cemex, Delphi, Siemens, KGHM). AGH-UST participates in many research and educational programs e.g.: FPs of EU, SOCRATES-ERASMUS, CULTURE, INTERREG III, LEONARDO, TEMPUS, EUREKA, COST, e-TEN.
AGH builds the bridges between science and industry by teaching students and industrial staff, as well as, by R&D activity: *Labore creata, labori et scientiae servio.*


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