



# CEIT'2015

## 3<sup>rd</sup> INTERNATIONAL CONFERENCE ON CONTROL, ENGINEERING & INFORMATION TECHNOLOGY

25-27 May 2015, Tlemcen, Algeria



Laboratoire d'Automatique  
de Tlemcen



# Chairs' Message

It gives us great pleasure to welcome everyone to the 3<sup>rd</sup> International Conference on Control, Engineering & Information Technology CEIT'2015 that will be held in Tlemcen, Algeria, 25-27 May 2015. The conference is hosted on the new campus of the University Abou Bakr Belkaid of Tlemcen and takes place under the auspices of the University of Tlemcen and the DG-RSDT (Direction Générale de la Recherche et du Développement Scientifique), in collaboration with The University of Valenciennes and ECAM-EPMI and with the technical sponsorship of IEEE sub-section Algeria.

It is in response to renewed interest in control and information technology and recognition of the role that such activities have in the development of societies that the **INTERNATIONAL CONFERENCE ON CONTROL, ENGINEERING & INFORMATION TECHNOLOGY** (CEIT'2015) was put into place. The previous CEIT events were held in Sousse, Tunisia, in 2013 and 2014.

This 3<sup>rd</sup> edition of CEIT'2015 follows the path of the two previous ones by including topics such as control systems, signal processing and telecommunications, information technology, power systems & electrical engineering, robotics and applications, and renewable energy, as well as professional development in these domains.

CEIT'2015 aims to bring academics, scientists, engineers and industrial partners together to discuss the recent developments in the areas of control engineering and information technology.

Our special thanks go to our guest speakers for coming from the USA, France, Italy, Switzerland and our neighbors from Tunisia to share this enjoyable event with us.

We also wish to thank all the authors for choosing this venue to present their research work, and all other participants who are taking part in this scientific event. We would like to thank all the members of the Local and International Organizing Committees, International Scientific Committee and the students involved for their great efforts in contributing to the success of the conference.

Finally, we would also like to thank the conference sponsors, especially the University of Tlemcen, which hosts the conference, and acknowledge the financial support of: RSDT, University of Tlemcen, Kherbouche Holding, Sonelgaz, Africafé and ICB.

We hope that you will enjoy the technical, professional and social activities offered during this conference but also take some time to visit the city of Tlemcen with its inspiring historical heritage.

With best wishes,

Prof. Mohamed DJEMAI,



Prof. Brahim Cherki,



## General Chairs



**Mohamed DJEMAI**, IEEE senior member, is currently full Professor at Valenciennes University, France since 2008, with Laboratory of Industrial and Human Automation, Mechanics and Computer Science, CNRS. UMR-8201. He received his MSc (1992) and PhD degree (January 1996) in Control Systems Engineering from Paris XI University, France. He was assistant professor (1996-2000) at CNAM, Paris and ENSI-Bourges and Associate Professor (2000-2008) at ENSEA at Cergy.

His research interests are in nonlinear control systems, variable structure systems, & hybrid dynamical systems and sliding mode in control, observation, and fault detection with various industrial applications. He is member of IFAC TC 2.1 control system, & TC. 1.3 Discrete Event and Hybrid Systems. He was visiting professor at Norhumbria University (2010-2013). He was general chair, member for IPC and Organizing Committee in several international conferences.



**Brahim CHERKI** is currently professor of automatic control at Tlemcen University, Algeria. He received an engineer degree from Ecole Supérieure d'Electricité, Paris, a magister degree from Tlemcen University both in automatic control and a PhD degree in robotics from Ecole Centrale de Nantes, France, in 1996.

His main research areas are linear and nonlinear control and he is currently involved in projects on the control of waste water plants.

## Co Chair



**Kais BOUALLEGUE** is Assistant Professor in the Higher Institute of applied Sciences and Technology of Sousse, Tunisia. He is an IEEE member. He got his PhD from National Engineering School of Sfax. He is active member in different industrial companies. He has served a reviewer for technical papers. Also he has mentored researchers at undergraduate and graduate levels. Moreover, He has been collaborating with many different international

universities. His currently research interests include fractal, chaos, genomic and complex system.

# Guest Speakers

## Pr. KHALIL Hassan



**Hassan KHALIL** is actually University Distinguished Professor at Michigan State University. He obtained his Ph.D., Electrical Engineering, University of Illinois 1978 and M.S., and BS., Electrical Engineering, Cairo University 1975 and 1973.

Principal research interests: robust and adaptive control of nonlinear systems, singular perturbation methods in control. He is currently a University Distinguished Professor of Electrical and Computer Engineering. He has published several papers on singular perturbation methods and nonlinear control.

He is the author of *Nonlinear Systems* (New York: Macmillan, 1992; Upper Saddle River, NJ: Prentice Hall, 1996 and 2002) and a coauthor of *Singular Perturbation Methods in Control: Analysis and Design* (New York: Academic, 1986; Philadelphia, PA: SIAM, 1999). Khalil is a fellow of the Institute of Electrical and Electronics Engineers (IEEE) as well as a fellow of the International Federation of Automatic Control (IFAC).

**Title of the presentation:** Extended High-Gain Observers in Nonlinear Feedback Control.

**Abstract:** High-gain observers have evolved as one of the useful tools in nonlinear feedback control. This talk will describe an extension of the theory to the so-called Extended High-Gain Observers (EHGO).

The talk will describe the use of EHGOs as disturbance estimators and soft sensors of the internal dynamics. The use of EHGO as disturbance estimators is based on the work of Freidovich and Khalil (IEEE Trans. AC, 2008) where the EHGO enables recovery of the performance of state feedback linearization in the presence of model uncertainty.

The use of EHGO to estimate the internal dynamics is based on the work of Boker and Khalil (Automatica, 2013) where the EHGO provides a signal that serves as virtual output for the internal dynamics; hence, allowing the design of internal-dynamics observer, which together with the EHGO estimate the full state.

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## Pr. RICHARD Jean Pierre



**Jean-Pierre RICHARD** received the D.Sc. in Physical Sciences, Ph.D. in Automatic Control, M.S Electronics from University of Lille 1984, 1981 and 1979. Dipl. Eng. 1979, Ecole Centrale de Lille (French "Grande Ecole") 1979, IEEE SM 1998, SEE SM 2003. His main research interests concern time-delay systems (stability, control, observation, identification, estimation) and their applications in networked control systems (teleoperation via unreliable networks, asynchronous sampling, collaborative control...). He is currently a University Distinguished Professor of

Automatic Control at the Ecole Centrale de Lille, where he leads the professional training “Research”. He is also in charge of the group CO2 (for “Control and scientific Computing”) at the CNRS Research Center in Informatics, Signal and Automatic control in Lille (CRISAL) and of the project-team NON-A (“Non-Asymptotic estimation for online systems”) at the INRIA Lille Nord Europe Research Centre. More details can be found at <http://researchers.lille.inria.fr/~jrichard>, including the list of his publications, awards, and former PhD students, as well as some lectures and videos.

**Title of the presentation:** Time-Delay Systems for Networked Control problems

**Abstract:** Networks such as Internet or Wireless 802.11 present great advantages for flexible and low-cost networking. However, they are not as reliable as CANs, and integrating them in control applications, while preserving some performance, constitutes an interesting challenge.

It will be explained how using delay models allows for catching many of the effects introduced by the presence of such unreliable networks in the control loops (such as variable transmission times, lost packets, non-uniform scheduling and sampling). Various theoretical techniques allow for analyzing the resulting models. Some of them need the delays to be constant, which can be obtained by using waiting strategies involving buffers and leading to time-driven solutions. Some other tolerate fast varying delays and allow for event-driven, faster solutions. Two experimental cases, remote control with state prediction and bilateral teleoperation over Internet, will illustrate the talk.

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### Dr. BOUAYNAYA Nidhal



**Nidhal BOUAYNAYA** (USA) received the B.S. degree in Electrical Engineering and Computer Science from the Ecole Nationale Supérieure de L’Electronique et de ses Applications (ENSEA), France, in 2002, the MS degree in Electrical and Computer Engineering from the Illinois Institute of Technology, Chicago, in 2002, the Diplome d’Etudes Approfondies in Signal and Image Processing from ENSEA, France, in 2003, the M.S. degree in Mathematics and the Ph.D. degree in Electrical and Computer Engineering from the University of Illinois at Chicago, in 2007. From 2007-2013, she was an Assistant then Associate Professor

with the Department of Systems Engineering at the University of Arkansas at Little Rock, USA. In September 2013, Dr. Bouaynaya joined Rowan University as an Assistant Professor with the Department of Electrical and Computer Engineering. Dr. Bouaynaya won the Best Student Paper Award in SPIE Visual Communication and Image Processing (VCIP) in 2006, the UALR Faculty Excellence Award in Research in 2013, and the Best Paper Award at the IEEE International Workshop on Genomic Signal Processing and Statistics (GENSIPS) in 2013. She is currently serving as a Review Editor of Frontiers in Systems Biology. Her current research interests are in

genomic signal processing, medical imaging, mathematical biology and dynamical systems. (<http://users.rowan.edu/~bouaynaya/>)

**Title of the presentation:** Optimal Perturbation Control of General Topology Molecular Networks.

**Abstract:** Analysis and intervention in the dynamics of genetic regulatory networks is at the heart of emerging efforts in the development of modern treatment of numerous ailments including cancer. The ultimate goal is to develop methods to intervene in the function of living organisms in order to drive cells away from a malignant state into a benign form.

We develop a comprehensive framework for optimal perturbation control of dynamic networks.

The aim of the perturbation is to drive the network away from an undesirable steady-state distribution and to force it to converge towards a desired steady-state distribution. The proposed framework does not make any assumptions about the topology of the initial network, and is thus applicable to general topology networks. We demonstrate that there exists at most one optimal perturbation that forces the network into the desirable steady-state distribution. In the event where the optimal perturbation does not exist, we construct a family of suboptimal perturbations, and show that the suboptimal perturbation can be used to approximate the optimal limiting distribution arbitrarily closely. Moreover, we investigate the robustness of the optimal perturbation control to errors in the probability transition matrix, and demonstrate that the proposed optimal perturbation control is robust to data and inference errors in the probability transition matrix of the initial network.

Finally, we apply the proposed optimal perturbation control method to the Human melanoma gene regulatory network in order to force the network from an initial steady-state distribution associated with melanoma and into a desirable steady-state distribution corresponding to a benign cell.

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### Dr. DI GENNARO Stefano



**Stefano DI GENNARO** obtained the degree in Nuclear Engineering in 1987 (summa cum laude), and the Ph.D. degree in System Engineering in 1992, both from the University of Rome "La Sapienza", Rome, Italy.

In October 1990 he joined the Department of Electrical Engineering, University of L'Aquila, as Assistant Professor of Automatic Control. Since 2001, he has been Associate Professor of Automatic Control at the University of L'Aquila. In 2012 he joined the Department of Information Engineering, Computer Science and Mathematics and he is also with the

Center of Excellence DEWS. He holds courses on Automatic Control and Nonlinear Systems. He has been visiting various Research Centers, among which the Department of Electrical Engineering of the Princeton University, the Department of Electrical Engineering and Computer Science at Berkeley, and the Centro de

Investigación y Estudios Avanzados del IPN, at Guadalajara. He is working in the area of hybrid systems, regulation theory, and applications of nonlinear control.

**Title of the presentation:** Nonlinear Techniques for Control Problems arising in Automotive Applications

**Abstract:** The problems arising in automotive applications make the automobile an interesting testbed for high performance controllers. Controllers are necessary to improve characteristics such as security, agility and comfort. At the same time, they are necessary to comply with more stringent regulations, e.g. to diminish the environmental impact. The availability of modern embedded computing devices, and the introduction of new sensors and actuators, allow the implementation of more sophisticated algorithms for estimation, observation, and control of a variety of physical processes occurring in a modern automobile. In this talk some of the problems arising in automotive applications will be presented, along with the nonlinear methodologies used to provide a solution.

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**Dr. BOURI Mohamed**



**Mohamed BOURI** graduated at Ecole Nationale Polytechnique d'Alger and obtained his PhD degree in Industrial Automation in 1997 from the National Institute of Applied Sciences, INSA Lyon, France.

Since 1997, he is at Ecole Polytechnique Fédérale de Lausanne (EPFL). He is mainly active in the field of robot control and robotics design for medical and industrial applications. Since 2002, he is the head of medical and rehabilitation robotics group at the Laboratory of Robotic Systems (LSRO). His ongoing research focuses on walking assistive orthosis and rehabilitation

devices for lower limbs.

**Title of the presentation:** Rehabilitation Robotics for Lower Limbs

**Abstract:** Robotics is increasingly used in rehabilitation therapies for paraplegics, tetraplegics and post stroke suffering subjects. This is mainly due to the opportunity to take advantages of the motorized mobilization providing controlled movements and the possibility to implement different sensory motor feedback strategies. Furthermore, the intelligence of such devices also allows the measurement of the progress of the patient during the therapy and interacts with it.

The exercises may have different objectives depending on the pathology. They may seek to reduce hypertonia, increase the joint range of motion, improve the plasticity behavior of the limb, increase muscular forces, decrease spasms or reach various other objectives. Robotized devices provide repetitive, precise and totally instrumented mobilization of the limbs.

The work concerned with this talk will focus on the state of the art of worldwide lower limb rehabilitation strategies and devices. Developments carried out at the

Laboratoire de Systèmes Robotiques (EPFL) will be presented. The MotionMaker will particularly be discussed. It provides the mobilization of the entire joints of the legs (Hip/Knee and Ankle of each Leg).

The innovative (and patented) adopted therapy associates mobilization and closed loop muscle electro stimulation. The rehabilitation strategy combining mobilization and the sensory feedback through force sensors will be presented and the clinical progress of 20 subjects of the CRR (Clinique Romande de Réadaptation, Sion, Suisse) will be discussed. The rehabilitation protocol will also be presented with its evaluation and exercise phases.

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### Pr. BEREKSI REGUIG Fethi



**Fethi BEREKSI REGUIG** graduated with the engineering degree in Electronics from the university of Science and technology, Oran, Algeria in 1983 and then with the M.sc degree in modern electronics from Nottingham University England in 1985. On 1989 he gets his PhD degree from the same University and then joined Tlemcen University as a lecturer in electronics on December 1989. Since then, he fully contributed for promoting different areas of electrical engineering and electronics as a faculty member. He was leading the group who sets the Biomedical Engineering degree at Tlemcen University. Since

2000, he is Professor and Director of the research [Laboratory in Biomedical Engineering](#). His area of research interests includes Biomedical signal Processing and microcomputer-based medical instrumentation. He is author of more than 120 papers published in international journals and conference proceedings.

**Title of the presentation:** Chaos Theory and fractal analysis in forecasting subjects in electrophysiological instability.

**Abstract:**

Electrophysiological instability as far as this presentation is concerned refers to the Electrical cardiac activity illustrated through the Electrocardiogram ECG. The instability may originates from cardiac diseases which, in some situations, lead to heart failure. Therefore electrophysiological instability related to the cardiac system is often evaluated through Heart Rate variability HRV, ECG waves intervals such as ST; QRS or QT.

Many clinicians consider the heart as a periodic oscillator with a rate varying in accordance to the organism demands. However, it has been shown that under physiologic conditions, the heart is not a periodic oscillator conferring complexity to the cardiac system and leading therefore to different behaviors which it may, more or less, exhibit. Such behaviors can be equilibrium, periodicity, quasi-periodicity, deterministic chaos and random behavior. Indeed, a first hypothesis stipulates that aging and illnesses are characterized with a loss of complexity degrading the capacity of aged persons or patients to adapt to different situations. This can be illustrated through one or more particular behaviors stated above.



The first three behaviors are examples of linear dynamics, which have been intensively studied through frequency analysis- and time-frequency analysis whereas the last two are that of non-linear dynamics. In fact, numerous studies have shown the high correlation of the frequency contents of HRV time series with heart failures. However, in recent years there has been increasing recognition that HRV and ECG waves intervals may represent a much more complex phenomenon reflecting the non-linear fluctuations of cardiac-autonomic outflows in a fractal and perhaps chaotic manner. Such complex phenomenon are illustrated and discussed with an emphasis on how chaos theory and fractal structure can be applied in forecasting subjects in electrophysiological instability.

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### **Pr. LATOSCHIK Marc Erich**



**Marc Erich LATOSCHIK** studied mathematics and computer sciences at the University of Paderborn, the New York Institute of Technology and the Bielefeld University. After several accompanying years in the computer business, he received his PhD in 2001 in the area of multimodal-gesture and speech-interaction for Virtual Reality.

He headed the AI & VR Lab at the Bielefeld University until 2007, became professor for media informatics at the University of Applied Sciences (HTW) in Berlin, and founded the Intelligent Graphics Group at Bayreuth University in 2009.

Marc holds the chair for human-computer interaction at Würzburg University since 2011. His work is interdisciplinary oriented towards human-computer interaction interconnecting real-time 3D graphics and simulation, virtual and augmented environments, Artificial Intelligence, and cognitive sciences.

**Title of the presentation:** Intelligent, Interactive, Multimodal - Techniques for Future Human-Computer Interfaces

**Abstract:**

Multimodal interfaces in Virtual, Augmented, and Mixed Realities promise to become novel forms of Human-Computer Interaction, taking into account the requirements defined by the physical, cognitive, and perceptive skills of users. Central aspect of such interfaces is their interactive nature combined with simulated spatial 3D content and environments, paving way for enhanced embodiment, immersion, and presence.

These interfaces comprehensively apply multimodality to the output as well as to the input side of closely-coupled human-computer systems. A variety of output channels for, e.g., visual, auditive, or haptics stimuli is complemented by multiple interaction paradigms based on direct manipulation, touch, speech and gesture, or even virtual agents. While each of the former I/O-related aspects in itself defines its own sets of requirements and methods to solve it, the highly interactive nature of such systems drastically complicates conceptual and technical solutions.

This talk will introduce the state-of-the-art, from scientific prototypes to computer game technology and will highlight some ongoing developments. Along the way, we will point-out chances as well as critical aspects of this technology which has already begun to enter our everyday lives, from our living-rooms to future work places.

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**Dr. BOUALLEGUE Kais**



**Kais BOUALLEGUE** is Assistant Professor in the Higher Institute of applied Sciences and Technology of Sousse, Tunisia. He is an IEEE member. He got his PhD from National Engineering School of Sfax. He is active member in different industrial companies. He has served a reviewer for technical papers. Also he has mentored researchers at undergraduate and graduate levels. Moreover, He has been collaborating with many different international universities. His currently research interests include fractal, chaos, genomic and

complex system.

**Title of the presentation:** Fractal and Chaos in Complex Systems

**Abstract:**

Fractals and chaos offer a rich environment for exploring and modeling the complexity of nature. In a sense, fractal geometry is used to describe, model, and analyze the complex forms found in nature. Fractals have also been widely not only in biology but also in medicine. To this effect, a fractal is considered an object that displays self-similarity under magnification and can be constructed using a simple motif (an image repeated on ever reduced scales). Chaotic systems were widely studied in many areas of research. Chaotic systems are highly dependent on initial conditions. Small changes in initial conditions can generate widely diverging or converging outcomes for both bifurcation and attraction in chaotic systems. In my presentation, I will give a link between the two important mathematical topics: fractal and chaos theory. From this link we elaborate three models of processes that have strong similarities with biology processes such as: mitosis process, meiosis process, duplication process, and crossing over process. We recall our fractal model of chromosome with one centromere and then we describe a new fractal model of chromosome with two centromeres. Some results show that this work can have a great impact on the humanity welfare and may be leveraged to cure of genetic diseases

## University of Tlemcen

The University of Tlemcen named Abou Bekr Belkaid, in tribute to an important political man of the town, is located on 3 different poles in and around the town. The studies at the university began in 1975 in Mathematics, Physics, Chemistry and Biology. After 14 years, the University was created by the 1989 presidential decree and has now eight different faculties and one annexe located in Maghnia; 60 km far from Tlemcen. Each of the eight faculties hosts several departments and is named after its speciality:

Faculty of Science, Technology, Law and Political Science, Arts and languages, Natural sciences and life and earth sciences and the universe, Medicine, Economics, Commerce and Management Sciences, Social and Human Sciences. More than 70 research laboratories are part of the university.

Tlemcen University is considered as one of the most important university in Algeria and is always ranked among the first ones. Now, More than 40 000 students are enrolled in our University. The funding of the university is public.

Tlemcen University is linked to many foreign universities by official conventions for research and teaching.



## City of Tlemcen

Tlemcen is a town in northwestern Algeria and the capital of the province (Wilaya) of the same name. It is located inland in the center of a region well known for its art and culture heritage.

Its centuries of rich history and culture have made the city a center of a unique blend of music and art. Its textiles and handcrafts, its elegant blend of Arabic, Islamic, Berber, and Andalucian cultures, and its cool climate in the mountains have made it an important center of tourism in Algeria. It is home to a beautiful tomb - that of Sidi Boumédienne one of the most important sufis of all the times, whose tomb adjoins to a mosque. The Great Mosque at Tlemcen was completed in 1136 and is said to be the most remarkable remaining example of Almoravid architecture. One of the most attractive monuments in Tlemcen is the minaret of Mansourah. It is the remains of the mosque built in 1299 by the Merinide Sultan Abou Yacoub when he came to besiege the Town. The site is open at all times. The lions you might hear roaring as you visit are across the road in the Mansourah Zoo.

## DAY 1 (Monday 25/05/2015)

<b>07:30 - 08:30</b>	<b>Registration</b>	
<b>08:30 - 09:00</b>	<b>Opening Ceremony</b>	
<b>09:00 - 09:50 (50 min)</b>	Plenary talk 1: <b>Pr. Hassan KHALIL</b> , Michigan State University, USA Title: <b><i>Extended High-Gain Observers in Nonlinear Feedback Control</i></b> Chairman: Pr. Mohamed DJEMAI	
<b>09:50 - 10:20</b>	<b>Coffee Break</b>	
<b>10:20 - 12:00</b>	<b>1- Parallel Sessions</b>	
Auditorium	MoA1	<b>Robotics and Applications:</b> <span style="float: right;"><b>2601, 2626, 2799, 2831, 2835</b></span> Chair: Dr. M. BOURI & Dr. A. CHOUKCHOU-BRAHAM
Amphi 1	MoA2	<b>Manufacturing and Supply Chain Automation: (Special Session)</b> <span style="float: right;"><b>2750, 43, 2570, 2790, 2269</b></span> Chair: Dr. A. BEKRAR & Dr. B. BOUZOUIA
Amphi 2	MoA3	<b>Renewable Energy 1:</b> <span style="float: right;"><b>1156, 2482, 2463, 2417, 2696</b></span> Chair: Dr. A. KOUZOU & Dr. B. BENYAHIA
Room 1	MoA4	<b>Information Technology 1:</b> <span style="float: right;"><b>2185, 2444, 2539, 2645, 2757, 2784</b></span> Chair: Dr. N. BOUAYNAYA & Dr. I. DIDI
Room 2	MoA5	<b>Signal Processing 1:</b> <span style="float: right;"><b>1157, 2213, 2281, 2646, 2715</b></span> Chair: Pr. F. BEREKSI REGUIG & Dr. A. BOUMEDIENE
<b>12:00 - 12:45 (45 min)</b>	Plenary talk 2: <b>Dr. Kais BOUALLEGUE</b> , ISS@T Sousse, Tunisia Title: <b><i>Fractal and Chaos in Complex Systems</i></b> Chairman: Dr. Nidhal BOUAYNAYA	
<b>12:45 - 14:00</b>	<b>Lunch</b>	
<b>14:00 - 14:50 (50 min)</b>	Plenary talk 3: <b>Pr. Fethi BEREKSI REGUIG</b> , University of Tlemcen, Algeria Title: <b><i>Chaos Theory and fractal analysis in forecasting subjects in electrophysiological instability</i></b> Chairman: Dr. Lotfi BAGHLI	
<b>14:50 - 16:30</b>	<b>2-Parallel Sessions</b>	
Auditorium	MoB1	<b>Algorithms and stability:</b> <span style="float: right;"><b>2370, 2449, 2763, 2816, 2826, 2837</b></span> Chair: Dr. C. BENSALAH & Dr. A. CHOUKCHOU-BRAHAM
Amphi 1	MoB2	<b>Power converters:</b> <span style="float: right;"><b>5, 2422, 2495, 2569, 2770</b></span> Chair: Dr. A. KOUZOU & Dr. F. ARICHI
Amphi 2	MoB3	<b>Renewable Energy 2:</b> <span style="float: right;"><b>2262, 2428, 2452, 2549, 2721, 2793</b></span> Chair: Dr. S. BENTOUBA & Dr. B. BENYAHIA
Room 1	MoB4	<b>Estimation &amp; Detection:</b> <span style="float: right;"><b>2221, 2302, 2525, 2536, 2687</b></span> Chair: Pr. F. BEREKSI REGUIG & Dr. I. DIDI
Room 2	MoB5	<b>Genetic Algorithm and Optimization:</b> <span style="float: right;"><b>2321, 2462, 2638, 2781, 2789</b></span> Chair: Dr. I. RACHID & Dr. A. BOUMEDIENE
<b>16:30 - 17:00</b>	<b>Coffee Break</b>	
<b>17:00 - 18:40</b>	<b>3-Parallel Sessions</b>	
Auditorium	MoC1	<b>Chaos:</b> <span style="float: right;"><b>2314, 2510, 2530, 2717, 2839</b></span> Chair: Dr. C. BENSALAH & Dr. A. CHOUKCHOU-BRAHAM
Amphi 1	MoC2	<b>Signal Processing 2:</b> <span style="float: right;"><b>2192, 2427, 2490, 2605, 2609, 2692</b></span> Chair: Pr. F. BEREKSI REGUIG & Dr. I. DIDI

Amphi 2	MoC3	<b>Identification &amp; Estimation:</b> 1126, 1129, 2387, 2424, 2691 Chair: Dr. T.M. LALEG-KIRAT & Dr. B. BENYAHIA
Room 1	MoC4	<b>PSO &amp; Optimization:</b> 2198, 2610, 2695, 2714, 2418 Chair: Dr. L. BEJI & Dr. O. SAMIR
Room 2	MoC5	<b>Fault Detection:</b> 2403, 2421, 2782, 2840, 23 Chair: Dr. N. MESSAI & Dr. A. BOUMEDIENE

## DAY 2 (Tuesday 26/05/2015)

<b>08:00 - 08:30</b>	<b>Registration</b>	
<b>08:30 - 09:20 (50 min)</b>	Plenary talk 4: <b>Dr. Nidhal BOUAYNAYA</b> , Rowan University, New Jersey, USA. Title: <i>Optimal Perturbation Control of General Topology Molecular Networks</i> Chairman: Pr. Kais BOUALLEGUE	
<b>09:20 - 11:00</b>	<b>4- Parallel Sessions</b>	
Auditorium	TuA1	<b>Control Application 1:</b> 1128, 2231, 2658, 2772, 2842 Chair: Dr. N. KHRAIEF & Dr. A. CHOUKCHOU-BRAHAM
Amphi 1	TuA2	<b>Industrial Electronics:</b> 1151, 2291, 2563, 2627, 2729 Chair: Dr. A. A. LADJICI & Dr. C. BENSALAH
Amphi 2	TuA3	<b>Information Technology 2:</b> 8, 2537, 2643, 2776, 2791 Chair: Dr. N. BOUAYNAYA & Dr. B. BENYAHIA
Room 1	TuA4	<b>Fractional Order Signals, Systems and Control: (Special Session)</b> 2261, 2399, 2464, 2545, 2576 Chair: Dr. S. LADACI & Dr. A. CHAREF
<b>11:00 - 11:40</b>	<b>Coffee Break + Poster</b>	
<b>(40min)</b>	<b>Poster Session 1</b>	
Hall	<b>Paper ID:</b>	20, 75, 1159, 2190, 2247, 2299, 2307, 2404, 2420, 2446, 2611, 2629, 2660, 2665, 2693, 2701, 2719, 2794
<b>11:40 - 12:30 (50 min)</b>	Plenary talk 5: <b>Pr. Marc Erich LATOSCHIK</b> , Würzburg University, Germany Title: <i>Intelligent, Interactive, Multimodal - Techniques for Future Human-Computer Interfaces</i> Chairman: Dr. Rachid GHERBI	
<b>12:30 - 14:00</b>	<b>Lunch</b>	
<b>14:00 - 14:50 (50 min)</b>	Plenary talk 6: <b>Dr Mohamed Bouri</b> , EPFL, Lausanne, Switzerland Title: <i>Rehabilitation Robotics for Lower Limbs</i> Chairman: Dr. Nidhal BOUAYNAYA	
<b>14:50 - 16:30</b>	<b>5- Parallel Sessions</b>	
Auditorium	TuB1	<b>Solar Energy:</b> 2228, 2233, 2377, 2535, 2753 Chair: Dr. S.BENTOUBA & Dr. A. CHOUKCHOU BRAHAM
Amphi 1	TuB2	<b>Coding, Cryptography &amp; transmission:</b> 2, 2211, 2445, 2498, 2620 Chair: Dr. C. BENSALAH & Dr. I. DIDI
Amphi 2	TuB3	<b>Sliding mode:</b> 2348, 2383, 2423, 2514, 2823 Chair: Pr. A. BAJODAH & Dr. B. BENYAHIA
Room 1	TuB4	<b>DES &amp; Software: (Special Session)</b> 2451, 2516, 2599, 2623, 2815 Chairs: Dr. R. KARA, Dr. S. AMARI & Dr. L. GHOMRI
Room 2	TuB5	<b>Advanced Human Machine Interfaces: (Special Session)</b> 2226, 2686, 2688, 2820, 2821 Chair: Dr. R. GHERBI & Dr. N. ZENATI
<b>16:30 - 17:00</b>	<b>Coffee Break</b>	

<b>17:00 - 18:40</b>	<b>6-Parallel Sessions</b>	
Auditorium	TuC1	<b>Diagnosis:</b> 45, 2341, 2487, 2647, 2802 Chair: Dr. T.M LALEG KIRATI & Dr. A. CHOUKCHOU-BRAHAM
Amphi 1	TuC2	<b>Control Application 2:</b> 2215, 2319, 2513, 2515, 2650 Chair: Pr. A. BAJODAH & Dr. C. BENSALAH
Amphi 2	TuC3	<b>Fuzzy Control &amp; Sliding Mode:</b> 2246, 2465, 2540, 2559, 2581, 2597 Chair: Dr. B. KADA & Dr. B. BENYAHIA
Room 1	TuC4	<b>Maintenance &amp; Reliability: (Special Session)</b> 2844, 2845, 2846, 2847, 2848 Chair: Dr. M-L. REBAIAIA & Dr. H. KHATAB
Room 2	TuC5	<b>Renewable Energy 3:</b> 2373, 2437, 2466, 2499, 2727 Chair: Pr. K. BUSAWON & Dr. A. BOUMEDIENE
<b>18:40 - 20:00</b>	<b>Free</b>	
<b>20:00 - 23:00</b>	<b>Gala Dinner</b>	

<b>DAY 3 (Wednesday 27/05/2015)</b>		
<b>08:00 - 08:30</b>	<b>Registration</b>	
<b>08:30 - 09:20 (50 min)</b>	Plenary talk 7: Pr. Jean Pierre RICHARD, Ecole Centrale de Lille, France Title: <i>Time-Delay Systems for Networked Control problems</i> Chair: Pr. Brahim CHERKI	
<b>09:20 - 11:00</b>	<b>7- Parallel Sessions</b>	
Auditorium	WeA1	<b>Wind Energy:</b> 84, 2229, 2668, 2670, 2682 Chair: Dr. N. MESSAI & Dr. A. CHOUKCHOU-BRAHAM
Amphi 1	WeA2	<b>Model Predictive Control Theories and Application:</b> 1131, 2205, 2237, 2797, 2838 Chair: Dr. A. KOUZOU & Dr. A. HAFIFA
Amphi 2	WeA3	<b>Information Technology 3:</b> 1152, 2171, 2344, 2441, 2767 Chair: Dr. N. BOUAYNAYA & Dr. B. BENYAHIA
Room 1	WeA4	<b>Power Systems:</b> 66, 2264, 2290, 2439, 2440 Chair: Pr. A. BAJODAH & Dr. B. KADA
Room 2	WeA5	<b>Control application 3 :</b> 1139, 2455, 2546, 2739, 2224 Chair: Dr. L. BEJI & Dr. S. OTMANE
<b>11:00 - 11:40</b>	<b>Coffee Break + Poster</b>	
<b>(40min)</b>	<b>Poster Session 2</b>	
Hall	<b>Paper ID:</b>	7, 16, 40, 57, 86, 1165, 2220, 2328, 2443, 2497, 2517, 2800 2518, 2602, 2604, 2619, 2651, 2681, 2703, 2724, 2785,
<b>11:40 - 12:30 (50 min)</b>	Plenary talk 8: Dr. Stefano DI GENNARO, University of l'Aquila, Italy Title: <i>Nonlinear Techniques for Control Problems arising in Automotive Applications</i> Chair : Pr. Brahim CHERKI & Pr. Mohamed DJEMAI	
<b>12:30 - 13:00</b>	<b>Closing Speech and Feedbacks</b>	
<b>13:00 - 14:00</b>	<b>Lunch</b>	
<b>14:30- 18:00</b>	<b>City tour</b>	

# Conference Venue (Nouveau Pole, Faculté de SNV)

The CEIT'15 will be held at the Auditorium of the faculty of SNV (Faculté des Sciences de la Nature et de la Vie et Sciences de la Terre et de l'Univers), situated on the **rocade west** of Tlemcen, (Nouveau pole).

**CEIT'2015** Secretary:

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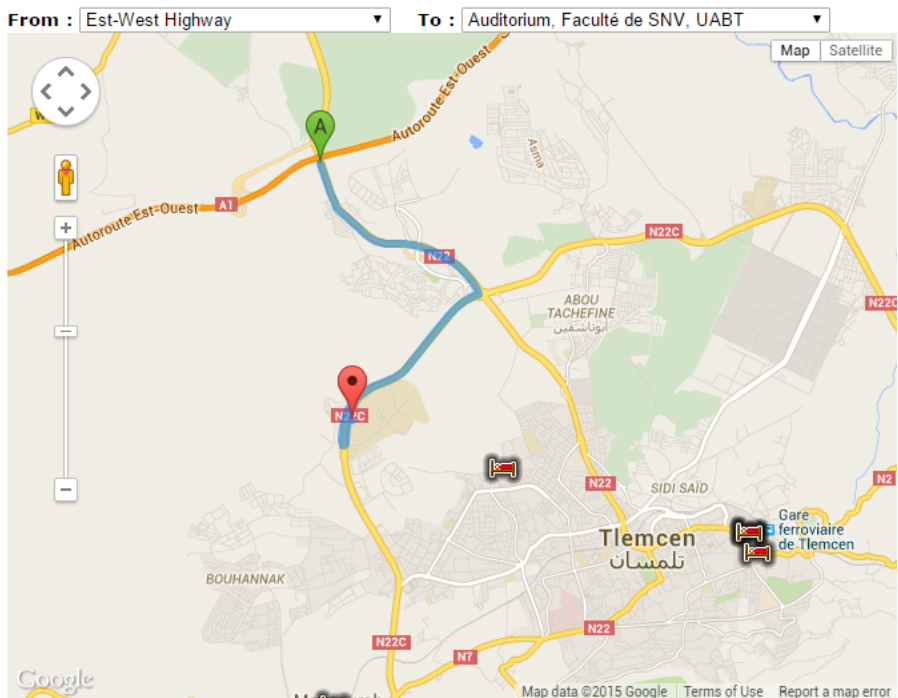
**Website:** <http://lat.univ-tlemcen.dz/ceit2015>





Venue information are indicated on the webpage:

<http://lat.univ-tlemcen.dz/ceit2015/venue.php>



**By Bus:** Buses will be available to ensure transport between Zianides Hotel and the “Nouveau pole” of the university (the conference venue).



## **List of accepted (Oral/Poster) papers**

- 2 Block-Based Distributed Video Coding Without Channel Codes
- 5 PI and Sliding Mode Controllers In Fault Tolerant PMSM Drive
- 8 Face Recognition using 1DLBP, DWT and SVM
- 16 ASE analysis Adaptive Pilot Symbol Assisted Modulation with Imperfect CSI
- 20 Feedback Linearization-Virtual Flux Direct Power Control for Three-phase Five-Level NPC Boost Rectifier
- 23 Toward Safety Navigation in Cluttered Dynamic Environment: A Robot Neural-Based Hybrid Autonomous Navigation and Obstacle Avoidance with Moving Target Tracking
- 40 Control information and analyzing of metering gas system based of orifice plate
- 43 Monitoring System for Manufacturing Process Application to a Cardboard Factory
- 45 An Effective Method for Bearing Faults diagnosis
- 57 Importance of Eyes and Eyebrows for Face Recognition System
- 66 Study and Implementation of indirect space vector modulation (ISVM) for direct matrix converter
- 75 Fabrication of ZnO thin film based humidity sensor with fast response by sol-gel associated to spin coating method
- 84 Computer Aided Design and Multiple Coupled Circuit Modelling of BDFM
- 86 Voltage control of DC-DC Buck Converter using Second Order Sliding Mode Control
- 1126 Fuzzy identification and control of a piezoelectric actuator
- 1128 Fuzzy Quasi LPV Model for a cross flow heat exchanger
- 1129 Fuzzy Direct Torque Control of Induction Motor with Sensorless Speed Control Using Parameters Machine Estimation
- 1131 State Constrained predictive control of Cart with Inverted Pendulum
- 1139 H-infinity controller design for Blood Glucose Regulation in Diabetes Patients in the Presence of Uncertain parameters
- 1151 Benefits of HVDC for Reducing the Risk of Cascading Outages and Large Blackouts in AC/DC Hybrid Grid
- 1152 Homogenous and Secure Weighted Clustering Algorithm for Mobile Wireless Sensor Networks
- 1156 Sliding Mode Control Of A Multi Source Renewable Power System
- 1157 Intrusion Detection and Classification Using Optical Fiber Vibration Sensor
- 1159 Study of the Variation of the Specific Gravity of the Electrolyte during Charge / Discharge Cycling of a Lead Acid Battery
- 1165 Students' Portal Architecture based on SOA
- 2171 Arbitrary Shaped Antenna Design for LTE2300/LTE2500/WLAN Applications
- 2185 Information Retrieval: A New Multilingual Stemmer Based on a Statistical Approach
- 2190 Non Linear Control of a Doubly Fed Induction Generator in Wind Turbines
- 2192 Robust Multimodal Biometric Identification System Using Finger-Knuckle-Print features
- 2198 A Maximum Power Point Tracker based on Particle Swarm Optimization for PV-Battery Energy System under Partial Shading Conditions.
- 2205 Genetic Algorithm Based Adaptive Fuzzy Terminal Synergetic DC-DC Converter Control
- 2211 Lossless Image Medical Compression Based on Mojette Transform Using DWT
- 2213 Ultrasonic non-destructive characterization of trabecular bone: Experimental and theoretical prediction of the ultrasonic attenuation
- 2215 Multivariable control of a drum-type boiler system through LQG fuzzy emulation
- 2220 Facial skin motion localization in a video sequence
- 2221 An Autonomous Hybrid Navigation Filter Using Earth Magnetic Field Measurements for Low Earth Orbit Satellite
- 2224 Design and Realization of a Real-Time Control Platform for Quadrotor Unmanned Aerial Vehicles

- 2226 Neural Network Balance Control of Hopping Robots in Flight Phase under Unknown Dynamics
- 2228 Comparative study of parabolic trough power plant with integrated TES and BS using synthetic oil and molten salt
- 2229 Modeling and Direct Power Control for a DFIG Under Wind Speed Variation
- 2231 Stabilization of Inertia Wheel Inverted Pendulum by Model Reference Adaptive IDA-PBC : From simulation to real-time experiments
- 2233 Semi-analytical Modeling and Optimization of a SiGe Thin-film Solar Cell Including Multi-trench Region
- 2237 Sliding Mode Control And Optimal GPC Algorithm for Coupled Tanks
- 2246 Fuzzy Adaptive Backstepping Sliding Mode Control of the Cart-Pendulum System
- 2247 Design and Modeling of On-Chip Square Planar Micro-Transformer
- 2261 Secure data transmission scheme based on fractional-order discrete chaotic system
- 2262 Experimental and theoretical study of a new synthesized Quinoline derivative as Greene inhibitor of corrosion for the cooling circuits in desalinated water
- 2264 Improvement of a photovoltaic pumping system for irrigation of greenhouses Case study for Laghouat, Algeria
- 2269 Decoupled Sliding Mode with Type 2 Fuzzy-Neural Network Controller for Multi-machine Power Systems
- 2281 2D-FDTD- UPML Simulation of Wave Propagation on Dispersive Media
- 2290  $\mu$ -Synthesis Based Robust Voltage Control for Cascade Boost Power Converter
- 2291 FPGA implementation of high gain observer for induction machine using Simulink HDL Coder
- 2299 Pre-feasibility study of the hybridization of diesel plants in southern Algerian
- 2302 Perceptual blur detection and assessment in the DCT domain
- 2307 3D Finite Element Analyses and Design Optimization of AFPM for Flywheel Energy Storage System
- 2314 Bifurcation Analysis and Chaos in Simplest Fractional-order Electrical Circuit
- 2319 Effects of geometric parameters and limits of application of microelectronic capacitive pressure sensors
- 2321 Iterative Learning Control for Nonlinear Systems subject to both Structured and Unstructured Uncertainties
- 2328 Comparison between Fuzzy, Neural and Neuro-Fuzzy Controllers for Mobile Robot Path Tracking
- 2341 Smart Diagnosis Algorithm of the Open-Circuit Fault in a Photovoltaic Generator
- 2344 A low overhead routing protocol for Ad hoc networks
- 2348 High Order Sliding Mode Observer Based Extremum Seeking Controller for a Continuous Stirred Tank Bioreactor
- 2370 impulsive differential inclusions on unbounded domain
- 2373 Numerical Solution of NEPCM Melting inside Spherical Enclosure
- 2377 Modeling and Analysis of the Photovoltaic array Faults
- 2383 Sliding mode Control for a Small Coaxial rotorcraft UAV
- 2387 An optimal iterative algorithm to solve Cauchy problem for Laplace equation
- 2399 Fractional Hammerstein system identification using polynomial non-linear state space model
- 2403 Design of a Robust Observer-Based FDI Scheme For a Class of Switched Systems Subject to Sensor Faults
- 2404 Prediction Global Solar Radiation and Modeling Photovoltaic Module Based on Artificial Neural Networks
- 2417 Direct Powers Control of DFIG Through Direct Converter and Sliding Mode Control For WECS
- 2418 Time-Dependant Trajectory Generation for Tele-operated Mobile Manipulator
- 2420 Fractional order direct current control algorithm for three-phase grid-connected PV system

- 2421 AR Model of The Torque Signal For Mechanical Induction Motor Faults Detection and Diagnosis
- 2422 Matrix converter prototype for motor drive
- 2423 Super Twisting Sliding Mode Control Of an Electric Vehicle
- 2424 Wiener System Identification using Polynomial Non Linear State Space Model
- 2427 Fast Algorithm to Minimize model Combining Dynamically Local and Global Fitting Energy for Image Segmentation
- 2428 Modeling and Experimentation of a 12kW Direct Driven PM Synchronous Generator of Wind Power
- 2437 Improvements of the Combustion Characteristics by the Hydrogen Enrichment
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- 2440 Energetic Macroscopic Representation (EMR) based on Internal Model Control (IMC) for Fuel Cell and Supercapacitor Hybrid Electric Vehicles
- 2441 Network Selection Using Game Theory
- 2443 A Simple Small Size Disk Microstrip Patch Antenna with a Rectangular Aperture for UWB Application
- 2444 Comparative Survey of Association Rule Mining Algorithms based on Multiple-criteria Decision Analysis approach
- 2445 On the Optimization of the Average Number of Additions in the RADIX-2r Recoding Heuristic
- 2446 Energy analyses of a house Heated by Radiators Low Temperature connected with Solar Storage Tank
- 2449 Asymptotic relationship between trajectories of nominal and uncertain nonlinear systems on time scales
- 2451 Radial Basis Function Neural Network-based Adaptive Control of Uncertain Nonlinear Systems
- 2452 Control of three-level NPC inverter based grid connected PV system
- 2455 Stable indirect adaptive HONN control for a class of non affine SISO nonlinear systems
- 2462 A new artificial bee colony algorithm for numerical optimization
- 2463 Fuzzy approximation-based Adaptive Sliding-Mode Control scheme for Underactuated Systems
- 2464 Fuzzy adaptive synchronization of a class of fractional-order chaotic systems
- 2465 Sliding Mode Observers for T-S Fuzzy Systems with Application to Sensor Fault Estimation
- 2466 Voltage and Frequency Control of Wind-Powered Islanded Microgrids based on Induction Generator and STATCOM
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- 2487 Vibration-Based Bearing Fault Diagnosis by an Integrated DWT-FFT Approach and an Adaptive Neuro-Fuzzy Inference System
- 2490 Contribution to the Implementation of Image Mosaicing Algorithm on FPGA using NIOS II Softcore
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- 2510 Function Vector Synchronization Based On Fuzzy Control For Uncertain Chaotic Systems With Dead-Zone Nonlinearities
- 2513 Design and Investigation of Fuzzy-PI and RST Controllers for a High Performance Matrix Converter Using Venturini Modulation Strategy Under Distorted Grid Voltage
- 2514 Experimental Evaluation of Induction Motor Robust Control Using Sliding Mode Linearization Technique

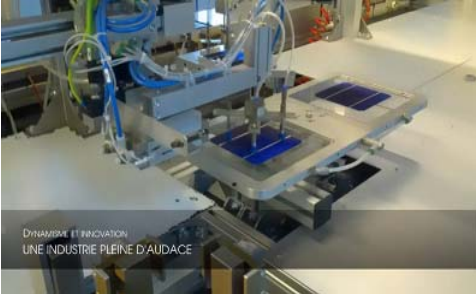
- 2515 An adaptive fuzzy PI control for a class of unknown nonaffine systems
- 2516 Kernel Methods to detect Intruders
- 2517 Modeling and generation of seismic ground motion for active control in civil engineering
- 2518 Tracking PDC controller for CSTR
- 2525 Gaussian Mixture Modeling for Indoor Positioning WIFI Systems
- 2530 On the Use of the Unified Chaotic System in the Field of Secure Communication
- 2535 An Overview Of Solar Cells Parameters Extraction Methods
- 2536 Ultrasonic Signals Parameters Estimation Based on Differential Evolution
- 2537 On Evaluating the Scalability Aspect of Gait-Based Biometric Systems for Larger Population
- 2539 Measuring inconsistencies on ontology change estimate based on cooperative game and Shannon entropy
- 2540 An LMI Approach to Robust  $H_{\infty}$  Control and Stabilization Analysis for Uncertain T-S Fuzzy Systems with State and Input Time-Delays
- 2545 Indirect Fractional Adaptive Pole Placement Control
- 2546 Induction motor cracked rotor bars fault analysis using an improved Root-MUSIC method
- 2549 Numerical Study of Microdrops sorting by Microfluidic Device
- 2559 A Multiobjective Integer Differential Evolution Approach for Computer Aided Drug Design
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- 2597 Output feedback based sliding mode control of active suspension using backstepping
- 2599 Fire safety DSL based algebra
- 2601 Trajectory generation for a fixed-wing UAV by the potential field method
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- 2670 Modeling and Control of DFIG via Back-to-Back Multilevel Converters using Fuzzy Logic Controller
- 2681 Experimental validation of a fault tolerant control of induction motor using a voting algorithm
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- 2687 Multi Phases Stator Short-Circuits Faults Diagnosis & Classification In DFIG Using Wavelet & Fuzzy Based Technique
- 2688 Towards a Linguistic Modeling of Graphical User Interfaces: Eliciting Modeling Requirements
- 2691 Simultaneous Estimation of the State and the Unknown Inputs for a Class of Switched Linear Systems
- 2692 Mass Segmentation in Mammograms For Computer- Aided Diagnosis Of Breast Cancer
- 2693 Thermal Analysis of The Alsat-1 Satellite Battery Pack Sub Assembly into the Honeycomb Panel
- 2695 Particle Swarm Optimization Based Reactive Power Planning for Line Stability Improvement
- 2696 A Doubly Fed Induction Generator Wind Turbine and Fuel Cell Hybrid Power Sources System for Micro-grid Applications
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- 2703 Polarimetric SAR images clustering with Gaussian Mixtures Model
- 2714 Parameter identification of photovoltaic cell/module using genetic algorithm (GA) and particle swarm optimization (PSO)
- 2715 Sign Language Recognition using PCA, Wavelet and Neural Network
- 2717 On Secure Image Transmission Combining Chaotic Encryption and Watermarking Using Dead Beat Synchronization of 4D Henon Maps
- 2719 Fuzzy Logic and Selectivity of Control for Controlling the Paralleling of Four Leg Shunt Active Power Filters Based on Three Dimensional Space Vector Modulation
- 2721 Modeling and control of Inverter Five Levels using in renewable energy
- 2724 Tomographic Image Reconstruction Using Filtered Back Projection (FBP) And Algebraic Reconstruction Technique (ART)
- 2727 LMI Conditions for Non-Quadratic Stabilization of T-S Models with Pole Placement Assignment
- 2729 The influence the angles of delay and overlap in the rate of harmonic in HVDC
- 2739 An Adaptive Backstepping Controller of Doubly-Fed Induction Generators
- 2750 Multiple Priority Dispatching Rules for the Job Shop Scheduling Problem
- 2753 An experimental study of low concentration on monocrystalline solar cells
- 2757 Development of Road Traffic Flow Model for Nighttime Conditions
- 2763 Simple control scheme for a class of underactuated mechanical system with tree structure
- 2767 Framework for VOIP speech database generation and a comparison of different features extraction methodes for speaker identification on VOIP
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- 2772 Stabilizing control based observer for a remotely operated vehicle (ROV-Observer)
- 2776 Nose Tip Localization on a Three Dimensional Face across Pose, Expressions and Occlusions Variations in a Riemannian Context

- 2781 Fuzzy Controller Parameters Optimization by Using Genetic Algorithm for the control of inverted pendulum
- 2782 Sliding Mode Controller for Breathing Subsystem on a PEM Fuel Cell System
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- 2785 Building diphone database for Arabic text to speech synthesis system
- 2789 Parameters Extraction of Photovoltaic Module for Long-Term Prediction Using Artificial Bee Colony Optimization
- 2790 An evolutionary Cellular Automata for Minimizing Energy Consumption in NoC-based Soft real-time embedded systems
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- 2794 An Evaluation of Conventional and Computational Intelligence Methods for Medium and Long-Term Load Forecasting in Algeria
- 2797 Simple Sliding Mode Applied to the Three-Level Boost Converter for Fuel Cell Applications
- 2799 Predator-Prey Coevolution in a Physically Simulated Environment
- 2800 Investigations on the flexibility of a Group Sequence and its effect on the Best-Case Schedule
- 2802 Simulation and Experimental Study of Induction Motor Broken Rotor Bars Fault Diagnosis using Stator Current Spectrogram
- 2815 Hybrid Control of DFIG Using Multicellular Converters
- 2816 Communication Satellite Link Budget Optimization Using Gravitational Search Algorithm
- 2820 Extended Web Services for Remote Collaborative Manipulation in Distributed Augmented Reality
- 2821 An Improved MOBIL Descriptor for Markerless Augmented Reality
- 2823 Position and Attitude Control of Quadrotor using Generalized Dynamic Inversion and Terminal Sliding Mode Control
- 2826 Robust Stability Analysis and Topological Dynamics of a Nonminimum Phase Supersonic Tactical Missile
- 2831 A Rule-Based Harmony Search Simulation-Optimization Approach for Intelligent Control of a Robotic Assembly cell
- 2835 Bottomhole pressure stabilizing observer-based controller in tunnel drilling system
- 2837 New approach of stability switched nonlinear system
- 2838 Development of MPC Algorithm for quasi Z-Source Inverter (qZSI)
- 2839 Output observer for chaos synchronisation applications
- 2840 PI observer gain optimization for fault detection with disturbance attenuation
- 2842 Stochastic stability and observer design for the lac operon model
- 2844 A maintenance optimization model for a second hand stochastically deteriorating system under different operating environments
- 2845 Risk Assessment in ERP projects using an integrated method
- 2846 Prioritization of Health Service Failures, A novel Cost-based framework
- 2847 Modified Block Replacement with Used Items at Scheduled Periods and at Failures
- 2848 A combination of reliability calculus and Importance Measures for Probability Risk Analysis

# Exhibition

Our partners to this conference will expose within the hall, near the poster area, their materials. Do not hesitate to have a talk with them, as this is an occasion to make partnership between academic staff and Algerian industry.



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