2013 International Conference on Advanced Logistics and Transport

(ICALT 2013)

Sousse, Tunisia
29–31 May 2013

Plenary Talk 1

Time: Wednesday, May 29, 2013, 09:45 – 10:30

Location: Carthage

Chairs: Atidel B. Hadj-Alouane (Univ. Tunis El-Manar, Tunisia), Vincenzo Piuri (Univ. Milan, Italy)

Probabilistic Approaches to Automated Transportation Systems

Christoph Stiller, President of the IEEE Intelligent Transportation Systems Society

Karlsruher Institut für Technologie, Germany

Abstract. We are witnessing an exciting trend towards automation of vehicles and traffic infrastructure. Major advances in this field are fostered by the IEEE Intelligent Transportation Systems Society and a series of competitions on a national and international level. Cooperation and coordinated driving of multiple self-driving automobiles offer a huge potential for the overall improvement of traffic flow, reliability, safety and efficiency. Probabilistic approaches for modeling of processes for vehicular ground transportation are outlined and discussed at the example of automobiles that perceive their environment and automatically navigate through everyday's traffic in a cooperative manner. Methods for 3D visual machine perception based on low cost mono- and binocular video sensors are presented. The contribution of prior knowledge from digital maps is elaborated as well as its curse in case of erroneous information. Real-time automated decision-making and trajectory planning methods are outlined. The communication of individual goals and intended trajectories enables automobiles to reduce their inherent uncertainty on the future evolution of the traffic scene and to mutually negotiate and revise their trajectories to yield optimized performance. Inspired by biological swarms a coordinated and homogenized traffic flow is achieved through cooperative yet distributed planning. Numerous results of automated driving are shown in real world urban and platooning scenarios including cooperation strategies of AnnieWAY the recent winner of the 2011 Grand Cooperative Driving Challenge.

Short Biography:

Christoph Stiller studied Electrical Engineering in Aachen, Germany and Trondheim, Norway, and received the Diploma degree and the Dr.-Ing. degree (Ph.D.) from Aachen University of Technology in 1988 and 1994, respectively. He worked with INRS-Telecommunications in Montreal, Canada for a post-doctoral year as Member of the Scientific Staff in 1994/1995. In 1995 he joined the Corporate Research and Advanced Development of Robert Bosch GmbH, Germany. In 2001 he became chaired professor and director of the Institute for Measurement and Control Systems at Karlsruhe Institute of Technology, Germany.

Dr. Stiller serves as President of the IEEE Intelligent Transportation Systems Society (2012-2013), Associate Editor for the IEEE Transactions on Intelligent Transportation Systems (2004-ongoing), IEEE Transactions on Image Processing (1999-2003) and for the IEEE Intelligent Transportation Systems Magazine (2012-ongoing). He served as Editor-in-Chief of the IEEE Intelligent Transportation Systems Magazine (2009-2011). He has been program chair of the IEEE Intelligent Vehicles Symposium 2004 in Italy and General Chair of the IEEE Intelligent Vehicles Symposium 2011 in Germany. His automated driving team AnnieWAY has been finalist in the Darpa Urban Challenge 2007 and winner of the Grand Cooperative Driving Challenge in 2011.

Plenary Talk 2

Time: Wednesday, May 29, 2013, 11:00 – 11:45

Location: Carthage

Chairs: Atidel B. Hadj-Alouane (Univ. Tunis El-Manar, Tunisia), Christoph Stiller (Karlsruher Institut für Technologie, Germany)

Biometric Technologies and Applications for Intelligent Transportation

Vincenzo Piuri

University of Milan, Italy

Abstract. Adaptability and advanced services for intelligent transportation require an intelligent technological support for knowing the needs and the desires of users in the interactions with the environment for their daily use transportation systems. To this purpose in some cases we can discover these characteristics by observing the human behavior, while in others we can retrieve stored information associated to the person. In both cases, the use of biometrics can be extremely useful both to understand the human behavior and to identify the person or the class of persons with similar characteristics so as to derive their needs and desires.

Biometric technologies allow in fact for analyzing human traits (e.g., face, fingerprint, palm) for identity management without requiring individuals to carry tokens or remembering information. These technologies allow also for classifying the persons by observing some soft-biometric traits (e.g., gait, height, weight, emotions), thus associating the needs typical of the detected class. Besides, some other soft-biometric traits (e.g., gestures, gait) allow for specifying actions desired by the person.

This talk will analyze the opportunities offered by biometric technologies and applications to support the realization of adaptable operations and intelligent services in intelligent transportation systems, based on a user-centric philosophy. Attention will be also given to a comprehensive system design methodology to take into account all application requirements, including the need for privacy protection.

Short Biography:

Vincenzo PIURI has received his Ph.D. in computer engineering at Politecnico di Milano, Italy (1989). He has been Associate Professor at Politecnico di Milano, Italy and Visiting Professor at the University of Texas at Austin and at George Mason University, USA. He is Full Professor in computer engineering (since 2000) and has been Director of the Department of Information Technology at the Università degli Studi di Milano, Italy.

His main research interests are: biometrics, pattern analysis and recognition, signal and image processing, machine learning, theory and industrial applications of neural networks, intelligent measurement systems, industrial applications, fault tolerance, digital processing architectures, embedded systems, and arithmetic architectures. Original results have been published in more than 350 papers in international journals, proceedings of international conferences, books, and book chapters.

He is Fellow of the IEEE, Distinguished Scientist of ACM, and Senior Member of INNS. He is Editor-in-Chief of the IEEE Systems Journal (2013-15), and has been Associate Editor of the IEEE Transactions on Neural Networks and the IEEE Transactions on Instrumentation and Measurement. He is IEEE Director and IEEE Delegate for Division X, and has been President of the IEEE Computational Intelligence Society, Vice President for Publications of the IEEE Instrumentation and Measurement Society and the IEEE Systems Council, Vice President for Membership of the IEEE Computational Intelligence Society, and Vice President for Education of the IEEE Biometrics Council.

He received the IEEE Instrumentation and Measurement Society Technical Award (2002) for the contributions to the advancement of theory and practice of computational intelligence in measurement systems and industrial applications, the IEEE Instrumentation and Measurement Society Distinguished Service Award (2008), and the IEEE Computational Intelligence Society Meritorious Service Award (2009).

Plenary Talk 3

Time: Wednesday, May 29, 2013, 11:45 – 12:30

Location: Carthage

Chairs: Christoph Stiller (Karlsruher Institut für Technologie, Germany), Vincenzo Piuri (Univ. Milan, Italy)

Risk Mitigation in Supply Chain Design

Atidel B. Hadj-Alouane

University of Tunis El-Manar, Tunisia

Abstract. While traditional supply chain redesign efforts can minimize the cost of supply chain designs and logistics operations, or even increase revenues and profits, implemented solutions remain extremely fragile to exceptions, failures and, generally, to unexpected internal or external changes. Particularly, supply chains may fail for many reasons: labor strikes, natural disasters, machine breakdowns, political instability, last minute customer changes, etc. Even the slight possibility of occurrence of these failures places the supply chain at risk of service failure, increased cost, and capacity imbalances. In this context, a major concern for businesses is to deploy supply chain structures that provide protection against these failures and changes.

This talk will present some strategies that can be effective in mitigating supply chain risks. We particularly focus on one specific solution: Process Flexibility. In supply chain design, it is common that a firm installs multiple plants for producing multiple products. As processes become more flexible, different types of products can be manufactured within the same plant. While full process flexibility, where each plant is configured to produce all products, reduces process risks significantly, the cost of implementing such processes can be prohibitive. Thus without a clear understanding of the benefits associated with different levels of flexibility, firms would be reluctant to invest in process flexibility especially when reliable data are difficult to obtain. Based on a cost/benefit analysis on an array of supply chain configurations we show how and when certain semi-flexible configurations can provide the same benefits as those provided by full flexible configurations.

Short Biography:

Atidel B. Hadj-Alouane is currently Professor of Industrial Engineering at the National Engineering School of Tunis (ENIT), Tunisia. She holds an Industrial Engineering degree from ENIT, the M.S.E. and Ph.D. degrees in Industrial and Operations Engineering from the University of Michigan (UM), Ann Arbor. She is founding Director of OASIS laboratory (Optimization and Analysis of Service and Industrial Systems) and cofounding Director of the Masters program of Industrial Systems Engineering at ENIT.

Atidel B. Hadj-Alouane's teaching and research interests include discrete optimization, application of mathematical programming to socio-economical sectors, particularly health planning and traffic grooming in telecommunication networks, and supply chain engineering and management with emphasis on the design of flexible supply chains as well as green logistics. Her research work was supported by several grants. She publishes regularly in refereed journals.

Plenary Talk 4
Time: Wednesday, May 29, 2013, 14:00 – 14:45
Location: Carthage
Chairs: Hakim Artiba (Univ. Valenciennes, France), Vanesa Durán-Grados (Univ. Cádiz, Spain)

Green Logistics: Ship's Emissions

Juan Moreno-Gutiérrez
University of Cadiz, Spain

Abstract. The terms Logistic and Greenness have wide appeal, and are seen by many as eminently desirable. However, as we explore the concept and its applications in greater detail, a great many paradoxes and inconsistencies arise, which suggest that its application may be more difficult than what might have been expected on first encounter. In logistics, time is often the essence. By reducing the time of flows, the speed of the distribution system is increased, and consequently, its efficiency. This is achieved by using the most polluting and least energy efficient transportation modes. As international trade continues to increase each year, port cities are booming from the increase in jobs, taxes, and secondary industries supporting the transportation and distribution of these goods. However, the increase in goods movement has also led to the increase in air emissions from port related maritime activities as well as local and regional goods-transport.

This talk presents a description of the feasibility of various types of emissions control technologies that may be available to the Ports to reduce air emissions from ocean going vessels while they are docked. For example, cleaner diesel fuel, exhaust controls and provision of shore side electricity on these vessels while they are at berth. In many cases ports can make a big difference when it comes to reducing human impact on the environment. Perhaps that's the reason why the concept of a "Green Port" is finding increasing response in the international port community.

Short Biography:
Dr Juan Moreno-Gutiérrez graduated in Marine Engineering on 1972 and obtained a PhD in Marine Science on 1992. Currently, he is Ship's emissions Research Scientist. He was the head of the department of engines, University of Cadiz, from 1997 to 2004 and was Professor of Naval Military School from 1993 to 1997.

His research interest includes Marine Engine Emissions, Marine Engine operation and maintenance, Emission-factor uncertainties in maritime transport, Passenger and Hydrographic Ships, Submarine, Land and Patrol Ships, etc.

AMSS 1 – Accessibility, Mobility, Security, and Safety

Time: Wednesday, May 29, 2013, 14:00 – 16:30

Location: Bousten 1

Chairs: Thierry Saint-Gérand (Univ. Caen, France), Houcine Ezzedine (Univ. Valenciennes, France)

ITS – Intelligent Transportation Systems
Time: Wednesday, May 29, 14:00 – 16:30
Location: Bousten 2
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Sei Ping Lau, Geoff Merret, Neil White
Univ. Southampton, United Kingdom

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LIAD. Faculty of Sciences Hassan II, Univ. Casablanca, Morocco

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Ahmed Derbel, Ahmed Frikha
Unit of Logistic, Industrial Management and Quality, Tunisia

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[1]Caen Basse-Normandie Univ., LSTE, IDEES Laboratory, France
[2]LGEDE Laboratory, Univ. Mascara, Algeria

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Houda Mnasser[1], Faïez Gargouri[1], Mourad Abed[2]
[1]Univ. Sfax, Tunisia
[2]LAMIH, Univ. Valenciennes (UVHC), France

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Youcef Zennir[1], Chérif Tolba[2], Senouci Benmansour[3]
[1]Univ. 20 Août 1955 Skikda, Algeria
[2]Univ. Badji-Mokhtar, Annaba, Algeria
[3]Univ. LE HAVRE, France

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Milka Uzunova[1], Mohamed Djemaï[2]
[1]EPMI LR2E, France
[2]Univ. Valenciennes, France

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Soumaya Moussa[1], Makram Soui[2], Mourad Abed[3]
[1]Univ. Gabes, Tunisia
[2]ISG, Tunisia
[3] LAMIH, Univ. Valenciennes (UVHC), France

LSCM 1 – Logistics & Supply Chain Management
Time: Wednesday, May 29, 14:50 – 16:30
Location: Carthage
Chairs: Nejib Ben Hadj-Alouane (Univ. Tunis El-Manar, Tunisia), Vanesa Durán-Grados (Univ. Cádiz, Spain)

Wednesday, May 29, 2013

SS-AII – Ambient Intelligence in Industry

Time: Wednesday, May 29, 14:50 - 16:30

Location: Bousten 3

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Sourour Trab, Ahmed Zouinkhi, Boumedyen Boussaid, Mohamed Naceur Abdelkrim
MACS, ENIG, Tunisia

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Kais Mekki, Ahmed Zouinkhi, Mohamed Naceur Abdelkrim
MACS, ENIG, Tunisia

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Fethi Matoui, Ahmed Zouinkhi, Mohamed Naceur Abdelkrim
MACS, ENIG, Tunisia

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Souad Rabah[1], Nesrine Zoghlami[1], Mourad Abed[2]
[1]ENIG, Tunisia
[2]LAMIH, Univ. Valenciennes (UVHC), France

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Mohamed Ben Farah, Jalloul Hajji, Mounir Samet, Abdennaceur Kachouri
National Engineering School of Sfax, Tunisia

SS-AII6   **Discrimination of Pollutant Odorants Using Neural Network** N/A

Rabeb Faleh, Abdennaceur Kachouri, Mounir Samet
Univ. Sfax, Tunisia

SIMTA – Machine Intelligence: Theory and Applications
Time: Wednesday, May 29, 17:00 - 18:30
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Amir Zidi, Mourad Abed
LAMIH, Univ. Valenciennes (UVHC), France

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Rim Fakhfakh, Amel Ksibi, Anis Ben Ammar, Chokri Ben Amar
REGIM-Lab. (REsearch Groups on Intelligent Machines), ENIS, Univ. Sfax, Tunisia

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Souad Benomrane, Mounir Ben Ayed, Adel M. Alimi
REGIM-Lab. (REsearch Groups on Intelligent Machines), ENIS, Univ. Sfax, Tunisia

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Pasqaule Avella[1], Maurizio Boccia[1], Sara Mattia[2]
[1]*Univ. Del Sannio, Italy*
[2]*Istituto di Analisi dei Sistemi ed Informatica IASI-CNR, Italy*

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REGIM-Lab. (REsearch Groups on Intelligent Machines), ENIS, Univ. Sfax, Tunisia

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Mouna Elghoul, Mounir Ben Ayed, Hela Ltifi, Adel M. Alimi
REGIM-Lab. (REsearch Groups on Intelligent Machines), ENIS, Univ. Sfax, Tunisia

SIMTA7   **Intelligent Path Planning Algorithm for Autonomous Robot based on Recurrent Neural Networks** 199
Hajer Brahmi, Boudour Ammar, Adel M. Alimi
REGIM-Lab. (REsearch Groups on Intelligent Machines), ENIS, Univ. Sfax, Tunisia

SS-ODMTS - Optimization and Decision Making in Transportation Systems
Time: Wednesday, May 29, 17:00 - 18:30
Location: Bousten 1
Chairs: Sabeur Elkosantini (Univ. Sfax, Tunisia), Saber Darmoul (Univ. King SAUD, KSA), Hany Hassan (Univ. King SAUD, KSA)

AMSS 2 – Accessibility, Mobility, Security, and Safety

Time: Wednesday, May 29, 17:00 - 18:30

Location: Bousten 2

Chairs: Dominique Fleury (IFSTTAR, France), Abdellah El Moudni (UTBM, France)

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Thierry Saint-Gérand[1], Mohand Medjkane[1], Abdelkrim Bensaid[1], Dominique Fleury[2], Jean-François Peytavin[2], Eliane Propeck[3], Maroua Bouzid[4]

[1]*IDEES-Caen Laboratory, Univ. Caen Basse-Normandie, France*

[2]*IFSTTAR Institute, France*

[3]*Image, City, Environment Laboratory, Univ. Strasbourg, France*

[4] *GREYC Laboratory, Univ. Caen Basse-Normandie, France*

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[1]*Eliane Propeck,* [2]*Thierry Saint-Gérand,* [2]*Mohand Medjkane*

[1]*Image, City, Environment Laboratory, Univ. Strasbourg, France*

[2]*IDEES-Caen Laboratory, Univ. Caen Basse-Normandie, France*

AMSS23	**RITA: a Framework Based on Multi-Evaluation Techniques for User Interface Evaluation Application to a Transport Network Supervision System** 263

Selem Charfi, Houcine Ezzedine, Christophe Kolski

LAMIH, Univ. Valenciennes (UVHC), France

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Yohan Guerrier, Christophe Kolski, Franck Poirier

LAMIH, Univ. Valenciennes (UVHC), France

Laboratoire UMR Lab-STICC, Univ. Bretagne sud, France

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Ahlem Assila[1], Houcine Ezzedine[1], Kathia Oliveira[1], Mohamed Salim Bouhlel[2]

[1]*LAMIH, Univ. Valenciennes (UVHC), France*

[2]*Higher Institute of Biotechnology of Sfax, Univ. Sfax, Tunisia*

AMSS26	**Impact of Transport Infrastructure on Regional Mobility: Application of Social Equity Approach** 284

Rafaa Mraihi[1], Anis Romdhani[2]

[1]*Higher Institute of Transport and Logistics, Univ. Sousse, Tunisia*

[2]*Center of Training in Jobs by the Transport and Logistics, Tunisia*

OLC 1 – Optimization and Logistics Challenges
Time: Wednesday, May 29, 17:00 – 18:30
Location: Bousten 3
Chairs: Adnan Yassine (Univ. Le Havre, France), Taicir Loukil (Univ. Sfax, Tunisia)

Plenary Talk 5

Time: Thursday, May 30, 2013, 09:00 – 09:45

Location: Carthage

Chairs: Bernard Grabot (National Engineering School of Tarbes, France), Abdelaziz Bouras (Univ. Lyon 2, France)

Telematics in Networked Robotic Vehicle Systems for an Efficient Flow of Traffic and of Materials

Klaus Schilling

University Würzburg, Germany

Abstract. Coordination of distributed dynamic systems offers interesting potential to increase efficiency in a broad spectrum of applications, ranging from the material flow in industrial production to traffic control systems. Here interdisciplinary TELEMATICS (= TELEcommunication + autoMATIon + informaTICS) methods will be addressed, raising challenging tasks to combine control engineering with approaches in communication, man-machine interfaces, tele-operations, autonomous reaction capabilities, sensor and data processing systems. To enable cooperation between vehicles, navigation data together with models of vehicle dynamics form the basis for path planning, which needs to be updated by information exchange between team members. Remote human teleoperators are to be coordinated with local autonomous reaction capabilities in time critical situations. Solution examples will address the operations of transport robots in industrial production or assistance systems for vehicles in traffic.

Short Biography:

Dr. Schilling is Ordinarius for Robotics and Telematics at University Würzburg. In parallel he is president of the company "Center for Telematics". Before he returned to academia, he was in space industry responsible for the design of interplanetary satellites (e.g. Huygens which landed 2005 on Titan, Rosetta to collect 2014 samples from a comet). His team built the first German pico-satellite UWE-1 (University Würzburg's Experimental satellite) and operated it 2005 successfully in orbit to optimize internet in space.

His research interest focus on networked cooperating vehicles, ranging from space to factory automation. Advanced transport robots for the flow of materials, for the transport of persons or for environment monitoring are investigated in his research group. He was Consulting Professor at Stanford University 2002 – 2006 and recipient of the Walter-Reis-Award for Innovation in Robotics 2008 and 2012. In 2012 he received the prestigeous Advanced Grant of the European Research Council for control of distributed small satellite systems. In international professional organisations he serves in IFAC since 2008 as chairman of "Technical Committee on Telematics" and at IEEE he was 2005 – 2011 chairman of the "Technical Committee on Networked Robotics".

Plenary Talk 6
Time: Thursday, May 30, 2013, 09:45 – 10:30
Location: Carthage
Chairs: Klaus Schilling (Univ. Würzburg, Germany), Abdelaziz Bouras (Univ. Lyon 2, France)

Customer-supplier Relationships in Aeronautical Supply Networks

Bernard Grabot

National Engineering School of Tarbes, France

Abstract. The necessity to increase collaboration in nowadays supply chains is emphasized by both academics and practitioners, but most of the supply chains are still managed through cascades of classical MRP systems, in which the respective power of the partners may deeply influence the efficiency of the collaboration processes. Several projects performed in the aeronautical sector, in which coexist large and small companies, have shown us the existence of many hidden practices aiming at satisfying local constraints, that would be better addressed through collaborative processes. We discuss in this talk the reasons and consequences of these practices, and give conditions for defining collaborative relationships providing a better global performance of the supply chain.

Short Biography:
Bernard Grabot is Professor in the National Engineering School of Tarbes, France (ENIT). His research activities are oriented on supply chain management, scheduling, competence management and decision support systems based on artificial intelligence tools.
Pr Grabot is member of the IFAC working groups 3.2 "Computational Intelligence in Control" and 5.1 "Manufacturing Plant Control", and of the IFIP working group 5.7 "Advances in Production Management Systems". He was member of the Network of Excellence I*PROMS of FP6 and has participated to several European projects (CRAFT, INTERREG, etc.). Pr Grabot is Editor in Chief of the IFAC journal "Engineering Applications of Artificial Intelligence". He also belongs to the editorial boards of "International Journal of Production Research", and "International Journal of Computational Intelligence Research".

Workshop: ITS for Mobility Governance in Smart Cities

Time: Thursday, May 30, 2013, 09:00 – 13:30

Location: Bousten 1

Chairs: Giorgio Ambrosino (GA Consultancy, Italy), Marco Boero (Softeco-Sismat, Italy)

The workshop presents and discuss the following European projects "Co-Cities" (EU CIP ICT Policy Support Program), for the advanced ICT Architecture and cooperative mobility, providing piloting of key enabling 'smart mobility' technologies, "ENCLOSE" (EU IEE Program) for the city logistics in urban area, "PERTH" (EU Program Life+) for the integrated parking and payment management and alternative mobility services, "COST 601" (EU Cost Program) on Bus Rapid System for urban public transport.

09:00-09:15:   Welcome and Workshop

09:15-09:30:   Mobility Governance in smart city
G. Ambrosino (GA Consultancy, Italy)
Ref: European Interreg IVC INVOLVE project

09:30-10:00:   Emerging ICT for mobility in smart city and state of the art of advanced ITS mobility services
M. Böhm (AustriaTech, Austria)
Ref: Eu Project: PSP-CIP InTime; EU-Study on emerging ICT technologies for Smart Cities (SMART0067)

10:00-10:30:   A mobility governance requirements in urban area: the case of Almada
C. Freitas (Almada Municipality, Portugal), C. Sousa (Ageneal, Portugal)
Ref: EU INTERREG IV C EPTA and IEE ENCLOSE Projects

10:30-11:00:   Coffee break

11:00-11:30:   Open Data, user information and cooperative services: towards Mobility 2.0
M. Boero (Softeco-Sismat, Italy), M. Dall'Agnol (ACTT, Italy)
Ref: EU Co-Cities, Life+ PERHT projects

11:30-12:00:   Public Transport solutions for smart cities: the role of BHLS services
B. Finn, ETTS, Ireland
Ref. EU Cost Action 603 - BHLS

12:00-12:30:   Last mile good distribution in small and medium historic towns; services schemes and technology tools
A. Liberato (MemEx, Italy), S. Guerra (Lucense, Italy), M. Di Bugno (Lucca Municipality, Italy)
Ref. EU IEE ENCLOSE and LIFE+ ELBA projects

12:30-13:00:   Ticketing system for integrated payment and interoperability of the different mobility services in towns
S. Gini (MemEx, Italy), P. Sassoli (Tiemme, Italy), F. Falsini (ATAM, Italy)
Ref: LIFE+PERHT and ENPI RAMUD Projects

13:00-13:30:   "Smart use of ITS": Discussion and Conclusions

ICTS – Information & Communications Technology and Systems

Time: Thursday, May 30, 11:00 – 13:00

Location: Carthage

Chairs: Khaled Ghdira (Univ. Tunis, Tunisia), Cyrille Bertelle (Univ. Le Havre, France)

ICTS1   **Applying Multi-Agent Technique in Cooperation: Case of Tourism Supply Chain** 335

Ezzedine Benaissa[1], Badia Tahrir[2], Abdellatif Benabdelhafid[1]

[1]Univ. Le Havre, France

[2]Univ. Casablanca, Morocco

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Abdelhamid Zouhair[1], El Mokhtar En-Naimi[1], Benaissa Amami[1], Hadhoum Boukachour[2], Patrick Person[2], Cyrille Bertelle[2]

[1]FST of Tangier, Univ. Abdelmalek Essaâdi, Morocco

[2]Univ. Le Havre, France

ICTS3   **A Binarization Strategy for Modelling Mixed Data in Multigroup Classification** 347

Youssef Masmoudi[1], Metin Turkay[2], Habib Chabchoub[1]

[1]Univ. Sfax, Tunisia

[2]Univ. Koç, Turkey

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Otto Petrovic, Michael J. Harnisch, Thomas Puchleitner

Univ. Graz, Austria

ICTS5   **Ship Handling Fuzzy Logic Approach for Determining Safety Criteria of Ferry Operation** 360

Antoni Arif Priadi[1], Abdellatif Benabdelhafid[1], Tri Tjahjono[2]

[1]Univ. Le Havre, France

[2]Univ. Indonesia, Indonesia

ICTS6   **Enabling product Traceability through Data Modeling and Semantic Web Service Ontologies** 365

Sabri Bendriss, Abdellatif Benabdelhafid

Univ. Le Havre, France

LSCM 2 – Logistics & Supply Chain Management
Time: Thursday, May 30, 11:00 – 13:00
Location: Bousten 2
Chairs: Marta Starostka-Patyk (Univ. Czestochowa, Poland), Abdelhakim Artiba (Univ. Valenciennes, France)

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Ahmed Attia
Univ. Damanhour, Egypt

LSCM22   **Risks Management in Tunisian Industry: Case Study** 375
Wissem Ennouri[1], Ahmed Frikha[1], Habib Chabchoub[2]
[1]Unit of Logistic, Industrial and Quality Management, Univ. Sfax, Tunisia
[2]Faculty of Economics and Management of Sfax, Univ. Sfax, Tunisia

LSCM23   **Using the ECOGRAI Method for Performance Evaluation in Maintenance Process** 382
Lobna Kallel, Mounir benaissa, Hichem Kamoun
Univ. Sfax, Tunisia

LSCM24   **Supply Chain Management Strategies of Moroccan firms: A Qualitative Study** 388
Jamal Elbaz, Hassan Batrich
Univ. Ibn Zohr, Agadir, Morocco

LSCM25   **Risks Prioritization in Global Supply Networks using MICMAC Method: A Real Case Study** 394
Manel Elmsalmi[1], Wafik Hachicha[2]
[1]Unit of Logistic, Industrial and Quality Management (LOGIQ), Univ. Sfax, Tunisia
[2]Unit of Mechanic, Modeling and Production, Engineering School of Sfax, Tunisia

LSCM26   **Contract Risk Control in the Dyadic Supply Chain** 400
Taher Khorchani, Mounir Benaissa
Univ. Sfax, Tunisia

OLC 2 – Optimization and Logistics Challenges
Time: Thursday, May 30, 11:00 – 13:00
Location: Bousten 3
Chairs: Adnène Hajii (Univ. Laval, Canada), Ahmed frikha (Univ. Sfax, Tunisia)

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Jean-Yves Colin[1], Ahmed Salem Ould Cheikh[2], Moustafa Nakechbandi[1]
[1]LITIS, Univ. Le Havre, France
[2]Univ. Nouakchott, Mauritania

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Said Toumi, Bassem Jarboui,Mansour Eddaly, Abdelwaheb Rebaï
Faculty of Economic Sciences and Management, Univ. Sfax, Tunisia

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Saïma Dhouib, Souhail Dhouib, Habib Chabchoub
LOGIQ Laboratory, Univ. Sfax, Tunisia

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Univ. Le Havre, France

OLC25   **GRASP for Seafaring Staff Scheduling: Real Case** 427
Mohamed Haykal Ammar, Mounir Benaissa, Habib Chabchoub
Univ. Sfax, Tunisia

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Imane Bouhaddou[1], Latifa Atifa Oouzizi[1], Youssef Benghabrit[1], Abdellatif Benabdelhafid[2]
[1]ENSAM, Morocco
[2]Univ. Le Havre, France

Plenary Talk 7
Time: Thursday, May 30, 2013, 14:00 – 14:45
Location: Carthage
Chairs: Thierry Saint-Gérand (Univ. Caen, France), Cyrille Bertelle (Univ. Le Havre, France)

Road Safety in France: from National Policy to a Local Territorial Approach

Dominique Fleury
Research Director of IFSTTAR, France

Abstract. Road safety in France has a history that explains the latest developments that can be observed today. This example is rich in lessons that can be used by other countries, including the Maghreb.

Road safety is first of all a national concern. This means it is a top-down process. In 1972, a road safety public policy has been decided leading to a significant reduction in the number of victims. Policy today is mainly focused on the control of driver behavior, explaining the transfer of the jurisdiction on this policy, from Department in charge of Transportation to the Department of the Interior.

The local institutional levels have now an ever more important role in prevention strategies due to the decentralization and transfer of national road networks to local communities. In the countryside the safety issue remains very high but the capacity for action remains low because of road network length and the increase in traffic generated by suburbanization.

In urban areas, the organizational safety – as it unfolds for work safety – is too often overlooked when it comes to preventing road accidents. In particular, the design of a real strategy focused locally on the steering action by safety, is not developed in France. It is as if the slogan of sustainability pays no attention to road safety.

Short Biography:

Dominique Fleury is Research Director Emeritus at the French institute of science and technology for transport, development and networks (IFSTTAR). He was trained at Ecole Centrale Paris. He is Associated professor in the University Versailles Saint Quentin en Yvelines and give Lectures in different Universities (Saint Quentin en Yvelines, Caen, Marne la Vallée, Brescia). He was Member of different committees for the French gouvernment, of group of the PREDIT, National Research Program on Transport, of the Scientific committee of the Foundation for Road Safety.

The work of Dominique Fleury in the field of road safety began in 1973 when he joined the National Organization for Road Safety. He became Head of Department of Accident Mechanism Analysis and President of the Editing Comity of the National Institute for Research on Transport and Safety. He had been responsible of the IFSTTAR team MISTRAL (Safety Integration in Local Public Policies and transport Management). Different levels of action in the management of the traffic system are able to improve safety. The research investigate how safety is taking into account in urban policy, e.g. urban planning, conception of public transportation network and what could be the tools for such an improvement.

LSCM 3 – Logistics & Supply Chain Management

Time: Thursday, May 30, 14:50 – 16:30

Location: Carthage

Chairs: Abdelaziz Bouras (Univ. Lyon 2, France), Abdellatif Benabdelhafid (Univ. Le Havre, France)

SS – ASCS   Advanced Supply Chain Simulation in Practice and Theory
Time: Thursday, May 30, 14:50 - 16:30
Location: Bousten 1
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ASCS1	**Evaluating Emergency Lateral Transshipment Policies Using Simulation-based Approaches** 470
	Wafik Hachicha[1], Fadwa Elleuch[2], Abdelfatteh Afli[2]
	[1]U2MP, Engineering School of Sfax, Tunisia
	[2]LOGIQ, Higher Institute of Industrial Management, Tunisia
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	[1]Higher Institute of Industrial Management of Sfax, Tunisia
	[2]Faculty of Economic Sciences and Management of Sfax, Tunisia
	[3]National Engineering School of Sfax, Tunisia
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	[1]LOGIQ, Univ. Sfax, Tunisia
	[2]U2MP, Engineering School of Sfax, Tunisia
ASCS4	**System Dynamics Simulation to Determine Safety Stock for a Single-Stage Inventory System** 488
	Imen Bel Haj Ali[1], Wafik Hachicha[2]
	[1]LOGIQ, Univ. Sfax, Tunisia
	[2]U2MP, Engineering School of Sfax, Tunisia
ASCS5	**Evaluation of AGV System in Flexible Production System: a Simulation Study** 494
	Soumaya Dhib[1], Mounir Elleuch[2], Ahmed Frikha[1]
	[1]LOGIQ, Higher Institute of Industrial Management, Univ. Sfax, Tunisia
	[2]LASEM, Engineering School of Sfax, Tunisia
ASCS6	**Study in Performance Analyses of Hospital Emergency Services: Case Habib Bourguiba Hospital** 500
	Hajer Sbih, Mounir Benaissa
	Univ. Sfax, Tunisia

LSCM 4 – Logistics & Supply Chain Management

Time: Thursday, May 30, 14:50 – 16:30

Location: Bousten 2

Chairs: Juan Moreno-Gutiérrez (Univ. Cadiz, Spain), Walid Klibi (UTBM, France)

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Marta Starostka-Patyk[1], Marcin Zawada[1], Aleksander Pabian[1], Mourad Abed[2]

[1]Faculty of Management, Czestochowa, Poland

[2]LAMIH, Univ. Valenciennes (UVHC), France

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Marcin Zawada[1], Marta Starostka-Patyk[1], Juan Moreno-Gutierrez[2], Vanessa Duran-Grados[2], Mounir Benaissa[3]

[1]Faculty of Management, Czestochowa, Poland

[2]Univ. Cadiz, Spain

[3]OASIS Laboratory, ENIT, Tunisia

LSCM43   **Criteria for Selection of Cooperators in a Regional Production Network** 518

Ivica Veza, Zoran Babic

Univ. Split, Croatia

LSCM44   **Selection of Optimal Product Lifecycle Management Components Based on AHP Methodologies** 523

Haiqing Zhang, Yacine Ouzrout, Abdelaziz Bouras

Univ. Lyon 2 Lumière, France

LSCM45   **Eco-Innovative Method to Improve the Distribution Phase of Product** 529

Wafa Samet Kallel[1], Yann Ledoux[2], Jean-Pierre Nadeau[3]

[1]Higher Institute of Arts and Crafts of Sfax, Univ. Sfax, Tunisia

[2]Univ. Bordeaux, France

[3]Arts and Crafts, Paris Tech, France

MCLS – Modeling the Complexity of Logistics Systems

Time: Thursday, May 30, 14:50 – 16:30

Location: Bousten 3

Chairs: Cyrille Bertelle (Univ. Le Havre, France), Souhail Dhouib (Univ. Sfax, Tunisia)

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Amira Hmayer[1], Imen Omezzine[2]

[1]*Higher Institute of Computer Science and Management of Kairouan, Tunisia*

[2]*GIAD/Faculty of Economic Sciences and Management of Sfax, Tunisia*

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Hamdi Dkhil[1], Adnan Yassine[2], Habib Chabchoub[1]

[1]*LOGIQ, Univ. Sfax, Tunisia*

[2]*Univ. Le Havre, France*

MCLS3   **Real Time Supply Chain Management: Co-Modeling of Totally Supply Chain Solution** 545

Walid Bouzayani, Mohamed Mahjoub Dhiaf

Univ. Sfax, Tunisia

MCLS4   **Stochastic Dual Dynamic Programming for Transportation Planning Under Demand Uncertainty** 550

Boutheina Fhoula, Adnene Hajji, Monia Rekik

Dept. Operations and decision systems, CIRRELT FSA, Univ. Laval Québec, Canada

MCLS5   **A Multi-Criteria Decision Making approach based on Fuzzy theory and Fuzzy Preference Relations for Urban Distribution Centers' Location Selection under uncertain environments** 556

Amna Bouhana[1], Habib Chabchoub[1], Mourad Abed[2], Afef Fekih[3]

[1]*Univ. Sfax, Tunisia*

[2]*LAMIH, Univ. Valenciennes (UVHC), France*

[3]*Univ. Louisiana at Lafayette, United States*

Plenary Talk 8

Time: Friday, May 31, 2013, 09:00 – 09:45

Location: Carthage

Chairs: Glenn Geers (Neville Roach Laboratory, Australia), Adnan Yassine (Univ. Le Havre, France)

The Structured Intelligence Approach (SIA) for the Modeling of Intelligent Behaviour

Essameddin Badreddin

University Heidelberg, Germany

Abstract. Linguistic definitions of intelligence and intelligent behaviour lack the necessary formalisms that make them useful for rigorous investigations, technical implementations and evaluations.

The Structured Intelligence Approach (SIA) offers a unified formal framework for the modeling, simulation and evaluation of intelligent behaviour as well as ²for the categorization and comparative studies within the domain of intelligence research.

Intelligence is considered as the problem solving capability under the following basic assumptions:

- there exists at least one solution to the problem; it must not be unique (multiple solutions are welcome!)
- the complexity of the solution can be classified in terms of the space and the time required (for evaluation purposes)
- the solution can be found by means of a deterministic topology; although non-determinism is ruled-out, unpredictability can exist
- the states space of the intelligent agent and the environment, each possess a perceptible & effectible subset.

The structure is based on the main building blocks: Innovation, Memory, Learning and Fusion. The main building blocks are explained and prototypical implementations are discussed. It is shown that this structure can equally be used for the intelligent agent itself (e.g. robot) and the environment ("Intelligence-in-the-loop"). Recent simulation studies for the path-planning problem show the explicit implementations, fruitfulness and the characteristics of the SIA.

Short Biography:

Prof. Dr.sc.techn. Essam Badreddin is currently the head of the Automation laboratory at the University of Heidelberg, Germany. He earned his Swiss Diploma (Dipl.Ing. ETH) in Electrical Engineering, the Doctor of technical sciences (Dr.sc.techn.) in Control Theory and Habilitation (Habil.) in Mechanical Engineering, all from the Swiss Federal Institute of Technology, Zurich (ETHZ), Switzerland. Then, he served in the industry at Contraves-Zurich as an R&D System Engineer in the airdefence sector, where he also holds several international patents (Silver Dollar awarded).

Returning to the ETH-Zurich, to found and lead the first robotics research group and build, one of if not, the first autonomous mobile robot of an industrial scale in Europe and introduce one of the first courses on the design of autonomous mobile robots worldwide. As Deputy Chair for Risk&Safety Technology, he lead the research group for risk and safety modeling & assessment at the ETH-Zurich.

In Japan, he served as a Monbushu (Ministry of Higher Education) associate Prof. at Toyohashi University of Technology before he moved to Germany to establish and lead the Automation Laboratory at the Institute of Computer Engineering at the University of Mannheim; currently at the University of Heidelberg.

Prof. Badreddin's research interests span process control, robotics, cognitive engineering and dependable hybrid systems.

Among other national and international boards, he is: the leader/coordinator of the European project OpenGain; the leader/coordinator of State project ECOMODIS; a member of the management committee and financial raporteur of the European project IntelliCIS; a peer-reviewer for the United Nations; a reviewer of the German Research Foundation (DFG); and a member of the Japanese-German Cooperation Network HEXAGON.

Plenary Talk 9
Time: Friday, May 31, 2013, 09:45 – 10:30
Location: Carthage
Chairs: Essameddin Badreddin (Universität Heidelberg, Germany), Adnan Yassine (Univ. Le Havre, France)

Enabling Intelligent Logistics Systems

Glenn Geers
NICTA, Australia

Abstract. Intelligent Transport Systems have been developed over the last 30 or so years with the overarching aims of making transport safer, more efficient and environmentally friendly. By far the greatest effort has gone into initiatives such as free flow tolling, adaptive traffic signal control and public transport priority with freight transport being forced to take the back seat. Yet in Australia freight transport amounts to approximately 14% of GDP; far in excess of the cost in most other countries. In this talk we discuss whether technical advances in the communications and sensing fields—collectively Cooperative ITS—coupled with new breakthroughs in the areas of constraint programming and optimisation can help to reduce the freight cost or at least make logistics chains more efficient. However, barriers exist. In the public transport domain more and more data is being made available to researchers and the public so that new insights into the transport system become visible and the burgeoning 'app' market is encouraged. Such openness is completely foreign in the freight transport arena but it seems that true efficiency gains may only be achieved if data is shared amongst seemingly competing interests in order to drive modal choice and interchange. We conclude by positing a future where 'intelligent freight' chooses its own route through the network with little interference from outside agencies.

Short Biography:
Dr Glenn Geers is the Technology Director of the Infrastructure, Transport & Logistics business team at NICTA; Australia's Centre of Excellence for Information and Communication Technology research. He is a Conjoint Associate Professor in the School of Computer Science and Engineering at the University of New South Wales; and is a member of the Society of Industrial and Applied Mathematics and the Association for Computing Machinery.
Glenn holds first class honours degrees in electrical engineering and theoretical physics and received his PhD in the field of computational electromagnetism.
Prior to joining NICTA in 2005 Glenn worked on biometrics, image processing and distributed systems at CSIRO and in private industry. Glenn is a member of academic, government and industry transport advisory groups both in Australia and overseas. He is active in promoting the use of vehicle-to-vehicle and vehicle-to-infrastructure communications (DSRC) in Australia and is a member of the AusDSRC Steering Committee, the National Managed Motorways Committee and the Austroads DSRC Industry Reference Group.

Tutorial 1: Designing Robust Value-Creating Supply Chain Networks
Time: Friday, May 31, 2013, 11:00 – 12:30
Location: Carthage
Speaker: Walid Klibi, CIRRELT - Canada & Bordeaux Business School - France
Abstract & Objectives: Supply Chain Network (SCN) design problems involve strategic decisions on the number, location, capacity and mission of supply, production and distribution facilities in order to provide goods to the market. Since SCNs must be designed to last for several years and must cope with any plausible future, this is a value maximization problem under uncertainty. This talk presents a methodology for SCN design under uncertainty taking into account all the problem facets, and based on the support of appropriate computer-aided analysis and modeling tools. After discussing the problem, and the relevant literature, the steps of the methodology are presented and illustrated for a typical business case: the location-transportation problem under uncertainty; and for the case of the Canadian Forces overseas supply network.

In this talk, the methodology proposed recognizes three event types to characterize the future SCN environment: random, hazardous and deep uncertainty events. These event types are studied through a three-phase hazard modeling approach. It involves a characterization of SCN hazards in terms of multihazards, vulnerability sources and exposure levels; the estimation of incident arrival, intensity and duration processes; and the assessment of SCN hit consequences in terms of damage and time to recovery. At the design time, future environments are anticipated through a scenario planning approach and are generated using a Monte Carlo method.

The original SCN design model formulated is a large-scale, multi-stage, multi-criteria, stochastic program with an infinite number of scenarios and, thus, is intractable. To tackle the problem, this talk proposes a number of complexity reduction mechanisms, and the design model is then reduced to a bi-criterion, multi-period, scenario-based two-stage stochastic program with recourse. Using several samples of Monte-Carlo scenarios (as in the Sample Average Approximation method) and different objective weights, alternative SCN designs are generated. In addition, the methodology proposes several stochastic programming models incorporating alternative resilience seeking formulations. In these models, recourse variables are introduced to anticipate company response policies in case of disruptions, which has the impact of enhancing the resilience of the designs obtained. Finally, a multi-criteria design evaluation approach is applied to select the most effective and robust SCN design among the candidate solutions.

Tutorial 2: RFID Technology: A Methodology of Evaluating its Impact through Modelling and Simulation
Time: Friday, May 31, 2013, 11:00 – 12:30
Location: Bousten 2
Speaker: Habib Hamam, Univ. Moncton, Canada
Abstract & Objectives: A presentation of RFID: Radio frequency identification (RFID) has been considered as "one of the most pervasive computing technologies in history" (Roberts, 2006 p. 56). However, RFID concept is not new. It is a wireless Automatic Identification and Data Capture (AIDC) that uses radio waves to identify "tagged" product without human intervention. RFID adoption is moving from niches applications such as antitheft systems, luggage tracking systems in airports, electronic toll collection systems (Smith and Konsynki, 2003), mobile commerce (Fosso Wamba et al., 2007) to more broader applications such as warehouse and supply chain optimization (Lefebvre et al., 2006).

The main objective of the tutorial is to present an academic methodology that uses modelling and simulation to evaluate the impact of RFID technology on organisations. A primer on the technology will also be presented as if to widespread use is rather recent. Moreover, we are going to discuss some challenges and problems which can arise during a RFID technology implementation.

Doctoral Consortium
Time: Friday, May 31, 2013, 11:00 – 12:30
Location: Bousten 1
Chair: Chokri Ben Amar (Univ. of Sfax, Tunisia)

Scope: The Doctoral Consortium is a workshop for Ph.D. students from all over the world who are in the early phases of their dissertation work. Ideally, students should have written or be close to completing a thesis proposal, and be far enough away from finishing the thesis that they can make good use of the feedback from the consortium.

The goal of the Doctoral Consortium is to help students with their thesis and research plans by providing feedback and general advice in a constructive and international atmosphere. A panel of prominent professors and experienced practitioners in the field of logistics and Transportation research working in organizations from different countries will conduct the workshop.

Participants:

1. *Intelligent System for Parking: Vision-Based Vacant Parking Places Detection*
    by Imen Masmoudi (REGIM-Lab., ENIS, Univ. Sfax, Tunisia)

2. *Identification and Analysis of Spatio-temporal Clustering and Risk Factors Related to Road Traffic Accident in Tunisia*
    by Fedy Ouni (Univ. Sousse, Tunisia)

3. *Application and Implementation of the Communication Protocol in VANET Network for Road Safety*
    by Bektache Djamel (Univ. Annaba, Algeria)

4. *Multi Criteria Approach for Performance Evaluation*
    by Lobna Kallel (FSEG, Univ. Sfax, Tunisia)

5. *Framework for the Implementation of a Traceability System: Case of the Road Transportation of Hazardous Products*
    by Mohamed Haykal Ammar (Univ. Sfax, Tunisia)

6. *Supply Chain Network Design*
    by Tahar Khorchani (FSEG, Univ. Sfax, Tunisia)

7. *Development and Optimisation of a Custom Kernel ANDROID for Next Generation of ARM-based System on Chip (SoC) Boards*
    by Nouha Ghribi (REGIM-Lab., ENIS, Univ. Sfax, Tunisia)

8. *Challenges and Theoretical contributions for MDSS*
    by Emna Ben Ayed (REGIM-Lab., ENIS, Univ. Sfax, Tunisia)

9. *Hierarchical Traceability of Multimedia Documents*
    by Faten Chaabane Laaraiedh (REGIM-Lab., ENIS, Univ. Sfax, Tunisia)

10. *A Smart Generic and Adaptive Platform for Control and Supervision in Wireless Sensors Networks*
    by Sonda Bousnina (REGIM-Lab., ENIS, Univ. Sfax, Tunisia)

11. *Semantic Video Indexing by Watermarking Techniques in the Compressed Domain*
    by Eya Mezghani Ben Abdallah (REGIM-Lab., ENIS, Univ. Sfax, Tunisia)