



International Conference on Smart Digital Environment (ICSDE'18)

Conference Program

October 18-19, 2018, Rabat, Morocco



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Conference Program

Organizers:

- ENSIAS College of engineering (Mohammed V University in Rabat)

Sponsors and partners:

- University of Houston, USA.
- Rabat Information Technology Center, Rabat, Morocco.
- Mohammed V University in Rabat.
- R&D OCP Group, Morocco.

<http://icsde.ifride.com>

Organizers



Topics:

The areas of interest include, but are not limited to:

- Smart electricity, grid and smart energy
- Smart home and smart buildings
- Smart agriculture and water systems
- Smart transportation systems
- System security, privacy, and safety
- Big data and mobile technologies
- Remote sensing and cloud computing
- Green computing and energy efficiency
- Wireless communication and Vehicular networks
- Social networks and computing
- Distributed and parallel systems
- Intelligent Systems
- Robotics and Control Systems
- Components, Circuits and Systems
- Internet of things
- Pervasive platforms and applications
- Software and its engineering

ICSDE'18 Main Program

Thursday October 18th, 2018

08:00-09:00	Registration	
09:00-09:40	Opening ceremony	
09:40 -10:30	Keynote Speaker 1 (Amphitheater) Dr. Sajal K. Das Professor, Missouri University of Science and Technology at Rolla, USA	
10:30-10:50	Coffee break	
10:50-12h30	Session 1 (Amphitheater): Cybersecurity	Session 2 (room 2): Communication systems and Localization
12:35-14:00	Lunch	
14:00-14:50	Invited Speaker 1 (Amphitheater) Ahmed Abdelgawad Professor, Central Michigan University, USA	
14:50-16:00	Session 3 (Amphitheater): Smart electric & communication systems 1	Session 4 (room 2): Smart systems & IoT
16:10-16:25	Coffee break	
16:25-17:30	Session 5 (Amphitheater): Smart electric & communication systems 2	Session 6 (room 2): Smart Data Processing
17:30-18:15	Invited Speaker 2 (Amphitheater) Michael Gerndt Professor, Technical University of Munich, Germany.	
18:15-19:15	Session 7 (Amphitheater): Smart Data and Smart Reality	Session 8 (room 2): Optimization and smart agriculture

ICSDE'18 detailed Technical Program

Thursday October 18th, 2018

Registration - (08:00-09:00)

Opening Ceremony - (09:00-09:40)

Keynote Speaker 1 - (09:40-10:30)

Amphitheater

- **Speaker:** Dr. Sajal K. Das, Professor, Missouri University of Science and Technology at Rolla, USA
- **Title:** *“Smart City as a Rational Agent”*
- **Session Chair:** Mohamed Essaïdi, ENSIAS, Mohammed V University in Rabat, Morocco

Coffee Break - (10:30-10:50)

Thursday Morning Sessions (10:50-12:30)

- **Session Title :** Cybersecurity
- **Session Chair:** Houssain Kettani, Dakota State University, SD, USA.

Hessam Mohammadmoradi and Omprakash Gnawali, University of Houston, USA,
[“Making Whitelisting-Based Defense Work Against BadUSB”](#)

Houssain Kettani and Robert Cannistra, Dakota State University, SD, USA, [“Cyber Threats to Smart Digital Environments”](#)

Youssef Harmouch and Rachid Elkouch, INPT, Rabat, Morocco, [“Brownian Techniques for Constructing High-Strong Cryptographic S-boxes”](#)

Zineb Korachi and Bouchaïb Bounabat, ENSIAS, Mohammed V University in Rabat, [“Data Quality Driven Smart Cities Maturity Model \(DQSC-MM\)”](#)

Lamiaa Sinif and Bouchaib Bounabat, ENSIAS, Mohammed V University in Rabat, Morocco, [“Approaching an optimizing Open Linked Government Data”](#)

- **Session Title :** Communication systems and Localization **Room 2**
- **Session Chair :** Omprakash Gnawali, University of Houston, USA

Mounia Bouabdellah and Faissal El Bouanani, ENSIAS, Mohammed V University in Rabat, Morocco, and Hussain Ben-Azza, ENSAM, Moulay Ismail University, Meknes, Morocco, “**Secrecy Outage Performance for Dual-Hop Underlay Cognitive Radio System over Nakagami-m Fading**”

Toufik Chaayra and Faissal El Bouanani, ENSIAS, Mohammed V University in Rabat, Morocco, and Hussain Ben-Azza, ENSAM, Moulay Ismail University, Meknes, Morocco, “**Union Bound On The Bit Error Probability Of TCM Coded With TAS/MRC MIMO System Subject To Weibull Fading Channels**”

Serhsouh Imane and Lebbar Hassan, Faculty of sciences and techniques, Hassan II University, Mohammedia, Morocco, and Himdi Mohamed, Institure of telecommunications of Rennes, University of Rennes I, France, “**Active H-shaped Slot Reconfigurable SIW Antenna for Beam-Scanning**”

Sara Riahi and Azzeddine Riahi, Faculty of sciences, Chouaib Doukkali University, El Jadida, Morocco, “**Optimal performance of the opportunistic scheduling in new generation mobile systems**”

Hessam Mohammadmoradi, Milad Heydariaan and Omprakash Gnawali, University of Houston, USA, “**UWB Physical Layer Adaptation for Best Ranging Performance within Application Constraints**”

Lunch - (12:35-14:00)

Invited Speaker 1- (14:00-14:50)

Amphitheater

- **Speaker:** Ahmed Abdelgawad, Central Michigan University, USA
- **Title:** “Internet of Things (IoT): From Sensors to Cloud”
- **Session Chair:** Houssain Kettani, Dakota State University, SD, USA

Thursday Afternoon Session (14:50-16:10)

- **Session Title :** Smart Electric & communication systems 1
- **Amphitheater**
- **Session Chair :** Hassan El Ghazi, INPT, Rabat, Morocco

Abdelhamid Aitoumeri, Abdelmalik Bouyahaoui and Mustapha Alami, INPT, Rabat, Morocco, “**A 28 GHz LC-VCO using Body Biasing and AAC Techniques with Low Power Consumption**”

Abderrahim Amar Mancour and Tamou Nasser, ENSIAS, Mohammed V University in Rabat, Morocco, “**Optimal voltage and reactive power control in power distribution system**”

Elmehdi Illi and Faissal El Bouanani, ENSIAS, Moahmmmed V University in Rabat, Morocco, and Fouad Ayoub, CRMEF, Kenitra, Morocco, “**On the Performance of mixed FSO-UOWC Communication System with the presence of Pointing Error**”

Najem Naji and Mohamed Riduan Abid, Al Akhawayn University, Ifrane, Morocco, Nissrine Krami, Ibn Tofail University, Kenitra, Morocco, and Driss Ben Haddou, University of Houston, USA, “**CASANET Energy Management System: a Wireless Sensors based solution for Heaters Control**”

- **Session Title:** Smart systems & IoT
- **Session Chair:** Driss Benhaddou, University of Houston, USA

Room 2

Hicham Amraoui, Ahmed Habbani and Abdelmajid Hajami, ENSIAS, Mohammed V University in Rabat, Morocco, “**Reducing Network Topology over Smart Digital Mobile Environment Using Linear Programming Approach**”

Ghezlane Halhoul Merabet and Mohamed Essaaidi, ENSIAS, Mohammed V University in Rabat, Morocco, Nacer Khalil, Driss Benhaddou, and Júlio Gabriel Chilela, University of Houston, USA, “**Measuring Human Comfort for Smart Building Application: Experimental Set-Up using WSN**”

Shadeeb Hossain and Ahmed Abdelgawad, Central Michigan University, USA, “**Smart Refrigerator Based on Internet of Things (IoT)**”

Safae Sossi Alaoui, Brahim Aksasse and Yousef Farhaoui, FSTE, Moulay Ismail University, Errachidia, Morocco, “**Big Data and Internet of Things for Air quality prediction**”

Coffee Break - (16:10-16:25)

Thursday Afternoon Sessions (16:25-17:30)

- **Session Title :** Smart Electric & communication systems 2
- **Amphitheater**
- **Session Chair :** Jamal El Abbadi, EMI, Mohammed V University in Rabat, Morocco

Anas El Filali, Laadissi El Mehdi and Malika Zazi, ENSET, Mohammed V Unievrsity in Rabat, Morocco, “**Tracking maximum power point in photovoltaic systems by calculating the apex of P-V characteristic**”

Karim Zouaq, Abdelhamid Aitoumeri, Abdelmalik Bouyahyaoui and Mustapha Alami, INPT, Rabat, Morocco, “**A study of Forward Body Biasing techniques for Subthreshold Ring Oscillators**”

Mason Stevens, Matt Horne, Yizhou Yao, Jiaqi Wang and Ahmed Abdalgawad, Central Michigan University, USA, “**Using Internet of Vehicle Technology for Decreased Medical Response Times**”

Lamia El Jadiri and Ismail Assayad, Hassan II University, Casablanca, Morocco, “**A platform for systematic verification of embedded components in IP-XACT, SystemC and Promela**”

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| <ul style="list-style-type: none">➤ Session Title : Smart Data Processing➤ Session Chair: Azeddine Elhassouny, ENSIAS, Mohammed V University in Rabat, Morocco. | Room 2 |
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Jihane Bahadi and Bouchra El Asri, ENSIAS, Mohammed V University in Rabat, Morocco, Mélanie Courtine, Paris 13 University, Paris, France, Maryem Rhanoui, ESI, Rabat, Morocco, and Yannick Kergosien, University of Tours, France, “**Towards Efficient Big Data: Hadoop Data Placing and Processing**”

Addarraqi Ilham, Faculty of sciences, Sidi Mohammed Ben Abdellah University, Fes, Morocco, Satori Hassan, Pluridisciplinary faculty of Nador, Mohammed I University, Nador and Satori Khalid, Faculty of sciences, Sidi Mohammed Ben Abdellah University, Fes, Morocco, “**Building A First Amazigh Database For Automatic Audiovisual Speech Recognition System**”

Quissam Zealouk, Faculty of sciences, Sidi Mohammed Ben Abdellah University, Fes, Morocco, Hassan Satori, Pluridisciplinary faculty of Nador, Mohammed I University, Nador, Mohamed Hamidi and Khalid Satori, Faculty of sciences, Sidi Mohammed Ben Abdellah University, Fes, Morocco, “**Voice pathology assessment based on automatic speech recognition using Amazigh digits**”

Abdessamad Chanaa and Nour-Eddine El Faddouli, EMI, Mohammed V University in Rabat, Morocco, “**Deep learning for a smart e-learning system**”

Invited Speaker 2- (17:30-18:15)

Amphitheater

- **Speaker:** Michael Gerndt, Professor, Technical University of Munich, Germany.
- **Title:** “*Smart Resource Management for Novel HPC Application Areas*”
- **Session Chair:** Mohamed Riduan ABID, Al Akhawayn University, Morocco

Thursday Afternoon Sessions (18:15-19:20)

- **Session Title :** Smart Data and Smart Reality Amphitheater
- **Session Chair:** Ahmed Habbani, ENSIAS, Mohammed V University in Rabat, Morocco.

Houda Elkoubaiti and Radouane Mrabet, ENSIAS, Mohammed V University in Rabat, Morocco, "[How Augmented and Virtual Reality Are Used in Smart Classrooms?](#)"

Taoufiq Zarra, Raddouane Chiheb, Rdouan Faizi and Abdellatif El Afia, ENSIAS, Mohammed V University in Rabat, Morocco, "[MOOCs' Recommendation Based on Forum Latent Dirichlet Allocation](#)"

Fatiha Bousbahai and Bayan Boreggah, King Saud University, Riyadh, Saudi Arabia, "[Mobile Augmented Reality Adaptation through Smartphone Device Based Hybrid Tracking to Support Cultural Heritage Experience](#)"

Khawla Mazwa and Tomader Mazri, National School of Applied Sciences, Kenitra, Morocco, "[A Survey on the Security of Smart Homes: Issues and Solutions](#)"

- **Session Title :** Optimization and smart agriculture Room 2
- **Session Chair:** Alan Mickelson, University of Colorado Boulder, USA.

Heinz Boehmer Fiehn, Lewis Schiebel, Arturo Freydig Avila, Bennett Miller and Alan Mickelson, University of Colorado Boulder, USA, "[Smart Agriculture System Based on Deep Learning](#)"

Ismail Assayad and Lamia Eljadiri, Hassan II University, Casablanca, Morocco, and Abdelouahed Zakari, University of Lorraine, Nancy, France, "[Generic Verification of Safety Properties For SystemC Programs Using Incomplete Interactions](#)"

Fatima Zahra Lahlou, Houda Benbrahim and Ismail Kassou, ENSIAS, Mohammed V University in Rabat, Morocco, "[Textual Context Aware Factorization Machines: Improving Recommendation by Leveraging Users' Reviews](#)"

Keynote Speaker

Dr. Sajal K. Das

Professor, Missouri University of Science and Technology at Rolla, USA

Title: “Smart City as a Rational Agent”

Bio: Dr. Sajal K. Das, whose academic genealogy includes Thomas Alva Edison, is a Professor of Computer Science and Daniel St. Clair Endowed Chair at the Missouri University of Science and Technology, Rolla, where he was the Chair of Computer Science Department during 2013-2017. Prior to 2013, he was a University Distinguished Scholar Professor of Computer Science and Engineering, and founding director of the Center for Research in Wireless Mobility and Networking (CReWMaN) at the University of Texas at Arlington. During 2008-2011, Dr. Das served the National Science Foundation as a Program Director in the Computer and Network Systems Division. His research interests include wireless and sensor networks, mobile and pervasive computing, smart environments (e.g., smart city, smart grid, smart healthcare), cyber-physical systems and IoTs, crowdsensing, data analytics, cloud computing, cyber-security and trustworthiness, biological and social networks, applied graph theory and game theory. He has contributed significantly to these area, having published over 700 research articles in high quality journals and conferences, and 51 book chapters. A holder of 5 US patents, Dr. Das directed numerous funded projects totaling over \$16 million and coauthored four books – “Smart Environments: Technology, Protocols, and Applications” (John Wiley, 2005); “Handbook on Securing Cyber-Physical Critical Infrastructure: Foundations and Challenges” (Morgan Kaufman, 2012); “Mobile Agents in Distributed Computing and Networking” (Wiley, 2012); and “Principles of Cyber-Physical Systems: An Interdisciplinary Approach” (Cambridge University Press, 2018). According to DBLP, Dr. Das is one of the most prolific authors in computer science. His h-index is 82 with 27,000+ citations according to Google Scholar. He is



the founding Editor-in-Chief of Elsevier's Pervasive and Mobile Computing journal since 2005, and serves as an Associate Editor of several journals including IEEE Transactions on Mobile Computing and ACM Transactions on Sensor Networks. A founder of IEEE PerCom, WoWMoM, SMARTCOMP and ACM ICDCN conferences, Dr. Das has served as General and Program Chair of numerous conferences. He is a recipient of 10 Best Paper Awards in prestigious conferences, and received numerous awards for teaching, mentoring and research including the IEEE Computer Society's Technical Achievement award for pioneering contributions to sensor networks and mobile computing. Dr. Das graduated 41 PhD and 32 MS thesis students. He is an IEEE Fellow.

INVITED SPEAKERS

Michael Gerndt

Professor, Technical University of Munich, Germany

Title: *“Smart Resource Management for Novel HPC Application Areas”*



Bio: Michael Gerndt received a Ph.D. in Computer Science in 1989 from the University of Bonn. He developed SUPERB the first automatic parallelizer for distributed memory parallel machines. For two years, in 1990 and 1991, he held a postdoc position at the University of Vienna and joined Research Centre Juelich in 1992 where he concentrated on programming and implementation issues of shared virtual memory systems. This research led to his habilitation in 1998 at Technische Universität München (TUM). Since 2000 he is professor for architecture of parallel and distributed systems at TUM. His current research focuses on programming models and tools for scalable parallel architectures. He is leading the development of the automatic performance analysis tools Periscope and of iOMP, an extension of

OpenMP for invasive computing. iOMP is a research project in the new Transregional Collaborative Research Center InvasIC (TR 89) funded by the German Science Foundation. In addition he is heading projects on parallel programming languages and their implementation on multicore processors as well as resource management in Cloud environments funded by public and industry sources. Since October 2011 he is the coordinator of the European FP7 project AutoTune on automatic online tuning. Michael Gerndt is the contact person of the Faculty of Informatics for international affairs.

Ahmed Abdelgawad

Professor, Central Michigan University, USA

Title: "*Internet of Things (IoT): From Sensors to Cloud*"

Bio: Dr. Ahmed Abdelgawad received his M.S. and Ph.D. degree in Computer Engineering from University of Louisiana at Lafayette in 2007 and 2011 and subsequently joined IBM as a Design Aids & Automation Engineering Professional at Semiconductor Research and Development Center. In Fall 2012 he joined Central Michigan University as a Computer Engineering Assistant Professor. In Fall 2017, Dr. Abdelgawad was early promoted as a Computer Engineering Associate Professor. His area of expertise is distributed computing for Wireless Sensor Network (WSN), Internet of Things (IoT), Structural Health Monitoring (SHM), data fusion techniques for WSN, low power embedded system, video processing, digital signal processing, Robotics, RFID, Localization, VLSI, and FPGA design. He has published two books and more than 65 articles in related journals and conferences. Dr. Abdelgawad served as a reviewer for several conferences and journals, including IEEE WF-IoT, IEEE ISCAS, IEEE SAS, Springer, Elsevier, IEEE Transactions on VLSI, and IEEE Transactions on I&M. He served in the technical committees of IEEE ISCAS 2007, IEEE ISCAS 2008, and IEEE ICIP 2009 conferences. He served in the administration committee of IEEE SiPS 2011. Dr. Abdelgawad has been appointed as a Track Chair of the International Conference on Cognitive and Sensor Networks (MIC-CSN 2013). He also served in the organizing committee of ICECS2013 and 2015



IEEE ICECS2015. Dr. Abdelgawad is the publicity chair in North America of the IEEE WF-IoT 2016/18 conferences. He is the finance chair of the IEEE ICASSP 2017. He is the TPC Co- Chair of IoT International Innovation Conference 2017, the TPC Co- Chair of Global Internet of Things Summit (GloTS 2017), and the technical program chair of IEEE MWSCAS 2018. He is currently the IEEE Northeast Michigan section chair and IEEE SPS Internet of Things (IoT) SIG Member. In addition, Dr. Abdelgawad served as a PI and Co-PI for several funded grants from NSF.



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