IEEE-CAS4IoT: Seasonal School in Circuits and Systems for the Internet-of-Things in Lisbon, Portugal.

The Seasonal School in "Circuits and Systems for the Internet-of-Things" (CAS4IoT) presents a joint academia-industry program in the field of IoT. CAS4IoT - http://sites.ieee.org/portugal-btcasce/cas4iot/ was organized by the Department of Electrical Engineering (DEE) at the Faculty of Sciences and Technology at NOVA University of Lisbon (FCT NOVA) together with the Centre of Technology and Systems (CTS) at UNINOVA Institute, on November 28-30, 2016. The Seasonal School was sponsored by the Circuits and Systems (SSCAS) initiative of IEEE Circuits and Systems Society (CASS) in cooperation with IEEE Portugal Section BT/CAS/CE Joint Chapter.

IoT can be envisaged as a dynamic network of interconnected physical and virtual entities ("things"), with their own identities and attributes, seamlessly integrated in order to e.g. actively participate in economic or societal processes, interact with services, and react autonomously to events while sensing the environment. By enabling things to connect and becoming recognizable, while providing them with intelligence, informed and context based decisions are expected in a broad range of domains spanning from health and elderly care to energy efficiency, either providing business competitive advantages to companies, either addressing key social concerns. The level of connectivity and analytical intelligence provided by the IoT paradigm is expected to allow creating new services that would not be feasible by other means.

CAS4IoT was able to prepare a group of 78 post-graduated students and design engineers (coming from 9 different countries: Portugal, France, Italy, India, Ireland, The Netherlands, Denmark, Poland, England), with the skills to understand and design a broader range of circuits and systems, in the field of IoT, spanning from data converters for sensor interfaces to radios, ensuring a good balance between academia and industry, combined with a judicious selection of worldwide distinguished Lecturers.

Figure 1: Group photo of CAS4IoT participants

The technical program of the 3 days CAS4IoT included 8 outstanding Lecturers given by world-recognized lecturers combined with hands-on lab sessions, during two afternoons (a total of 8h) within the three days, in which an IoT demo project will be implemented.

The 8 Lecturers of this course were:

1 - Ultra-low voltage and micro-power analog circuits for IoT - Prof. Franco Maloberti, University of Pavia, Italy.

2 - SAR ADCs for IoT: Basics and Innovations – Prof. Pieter Harpe, Eindhoven University of Technology, Eindhoven, The Netherlands.

3 – Sigma-Delta Modulators for IoT – Prof. Nuno Paulino, FCT NOVA, Portugal

4 - Industrial IoT – M. Sc. Noel O'Riordan S3 Group, Dublin, IRELAND

5 - Power-and-Energy Management for IoT – Prof. Marcelino Santos, CTO SiliconGate, IST/UL, Portugal

6 - Microprocessors/MCUs for IoT – Prof. Leonel Sousa, IST/UL, INESC-ID, Lisbon, Portugal

7 - BLE Radio Architectures and Design for the IoT Market, Dr. Augusto Marques, CTO Aura Semiconductor, INDIA

8 - Nanosensors, from fundamentals to IoT deployments, Dr. Bérengère Lebental Research Scientist at IFSTTAR, France.

Figure 2: 1) On the left hand side: Photo with the Coordinator of the Seasonal School CAS4IoT, Prof. João Goes (left), together with Prof. Franco Maloberti (President of the IEEE CAS Society) and the Dean of the Faculty (right); 2) On the right hand side: photo of the Hands-on (lab) session.

Luis Oliveira, IEEE Section BT/CAS/CE Joint Chapter Chair
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