

# **2014 6th European Embedded Design in Education and Research Conference**

**(EDERC 2014)**

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## Contents

<b>1</b>	<b>Welcome</b>	<b>iii</b>
<b>2</b>	<b>Committees</b>	<b>iv</b>
<b>3</b>	<b>Keynotes and Invited Industrial Talk</b>	<b>vi</b>
<b>4</b>	<b>Tutorials</b>	<b>vii</b>
<b>5</b>	<b>Technical Program</b>	<b>ix</b>
5.1	Program Overview . . . . .	ix
5.2	Programme Details — Thursday, 11 September 2014 . . . . .	x
5.3	Programme Details — Friday, 12 September 2014 . . . . .	xv
<b>6</b>	<b>Technical Papers</b>	<b>1</b>
<b>7</b>	<b>Author and Session Index</b>	<b>320</b>

## 5.2 Programme Details — Thursday, 11 September 2014

### Opening Remarks and Industrial Keynote Address Thursday, 11 September 2014, 8:15–9:20

Room: Oro Plenaria

Chair: Djordje Marinkovic (Texas Instruments, Germany), John J. Soraghan (University of Strathclyde, United Kingdom)

8:15 **Welcome**

Djordje Marinkovic, John J. Soraghan (Conference Chairs)

8:30 **Industrial Keynote Address**

Dr. Ahmad Bahai (CTO of Analog Business at Texas Instruments)

### O1: Education I Thursday, 11 September 2014, 9:20–10:00

Room: Oro Plenaria

Chair: Djordje Marinkovic (Texas Instruments, Germany), John J. Soraghan (University of Strathclyde, United Kingdom)

9:20 **Texas Instruments MSP430 Microcontroller Based Portable Multi-Purpose Instrument for Android Platforms**

Robert Katona (University of Pannon, Hungary); Dénes Fodor (University of Pannonia, Hungary) p.1

9:40 **Teaching Embedded Software Development Utilising QNX and Qt with an Automotive-Themed Coursework Application**

Peter Barrie (Glasgow Caledonian University, United Kingdom); Gordon Morison (Glasgow Caledonian University, United Kingdom) p.6

### Refreshments Thursday, 11 September 2014, 10:00 –10:30

### O2: Sensor Networks I Thursday, 11 September 2014, 10:30–12:00

Room: Argento Plenaria

Chair: Ralf Gessler (Heilbronn University, Germany)

10:30 **Development of a Low Power Wireless Network to Support Elderly People Based on Ez430-Chronos and SimpliciTI**

Bruno Ribeiro (University of Beira Interior & Dep. Eng. Electromecanica, Portugal); António Espírito Santo (University of Beira Interior, Portugal); Weber S Calixto (UFPR - Universidade Federal do Parana, Brazil); Nuno M. Garcia (Universidade da Beira Interior & Instituto de Telecomunicações, Universidade Lusófona de Humanidades e Tecnologias, Portugal) p.11

10:50 **Design and Implementation of a Multi Sensors Self Sustainable Wearable Device**

Danilo Porcarelli (University of Bologna, Italy); Irene Donati (University of Bologna, Italy); Jetmir Nehani (University of Bologna, Italy); Davide Brunelli (University of Trento, Italy); Michele Magno (ETH Zurich and University of Bologna, Switzerland); Luca Benini (University of Bologna, Italy) p.16

11:10 **A Novel Pulseoximeter for Bluetooth Synchronized Measurements in a Body Sensor Network**

Maik Pflugradt (TU Berlin, Germany); Igor Fritzsich (TU Berlin, Germany); Steffen Mann (Technische Universität Berlin, Germany); Timo Tigges (Technische Universität Berlin, Germany); Reinhold Orglmeister (TU Berlin, Germany) **p.21**

**11:30 Application of MSP430 and DSP C5000 in Mobile Patient and Environmental Monitoring**

Dinko Oletic (University of Zagreb & Faculty of Electrical Engineering and Computing, Croatia); Vedran Bilas (University of Zagreb, Croatia) **p.26**

**O3: Multicore**

**Thursday, 11 September 2014, 10:30–12:00**

Room: Oro Plenaria

Chair: Gordon Morison (Glasgow Caledonian University, United Kingdom)

**10:30 Improving Performance and Productivity for Software Development on TI Multicore DSP Platforms**

Miguel Aguilar (RWTH Aachen University & Institute for Communication Technologies and Embedded Systems, Germany); Ronny Jimenez (RWTH Aachen University, Germany); Rainer Leupers (RWTH Aachen University, Germany); Gerd H. Ascheid (RWTH Aachen University, Germany) **p.31**

**10:50 PREESM: A Dataflow-Based Rapid Prototyping Framework for Simplifying Multicore DSP Programming**

Maxime Pelcat (INSA Rennes, France); Karol Desnos (INSA Rennes, France); Julien Heulot (IETR, INSA Rennes & CNRS UMR 6164, UEB, France); Clément Guy (INSA Rennes, France); Jean-François Nezan (IETR, France); Slaheddine Aridhi (Texas Instruments, France) **p.36**

**11:10 Open Event Machine: A Multi-Core Run-Time Designed for Performance**

Filip Moerman (Texas Instruments, France) **p.41**

**11:30 Parallel FFT Implementation on TMS320C66x Multicore DSP**

Aleksei Kharin (Ryazan State Radio Engineering University, Russia); Sergey Vityazev (Ryazan State Radio Engineering University, Russia); Vladimir Vityazev (Ryazan State Radio Engineering University, Russia); Naim Dahnoun (University of Bristol, United Kingdom) **p.46**

**P1: Poster I**

**Thursday, 11 September 2014, 12:00–14:30**

Room: Plenaria delle divinità

Chair: Carmine Clemente (University of Strathclyde, United Kingdom), Gaetano Di Caterina (University of Strathclyde, United Kingdom)

**P1.1 3D Video Streaming From a Remotely Operated Vehicle**

David Scaradozzi (Università Politecnica delle Marche, Italy); Laura Sorbi (Università Politecnica delle Marche, Italy); Francesco Zoppini (Università Politecnica delle Marche, Italy) **p.50**

**P1.2 An ARM Neon Optimised Image Abstraction Method Utilising the Cosine Integral Image Method**

Ryan Gibson (Glasgow Caledonian University, United Kingdom); David Round (Glasgow Caledonian University, United Kingdom); Mark Jenkins (Glasgow Caledonian University, United Kingdom); Peter Barrie (Glasgow Caledonian University, United Kingdom); Gordon Morison (Glasgow Caledonian University, United Kingdom) **p.55**

**P1.3 Audio-Communication Subsystem Module for Yrobot - A Modular Educational Robotic Platform**

Juraj Miček (University of Žilina & Faculty of Management Science and Informatics, Slovakia);

Ondrej Karpíš (University of Žilina & Faculty of Management Science and Informatics, Slovakia); Michal Kochláň (University of Žilina & Faculty of Management Science and Informatics, Slovakia) p.60

**P1.4 Processor Virtualization on Embedded Linux Systems**

Geoffrey Papaux (University of Applied Sciences and Arts Western Switzerland, Fribourg, Switzerland); Daniel Gachet (University of Applied Sciences of Western Switzerland, Fribourg, Switzerland); Wolfram Luithardt (University of Applied Sciences of Western Switzerland, Fribourg, Switzerland) p.65

**P1.5 Efficient Implementation of Sliding Mode Control for BLDC PM Motor Using TMS320F28335 Microcontroller**

Mirela Dobra (TU of Cluj-Napoca, Romania); Ioan Valentin Sita (Technical University of Cluj Napoca, Romania); Petru Dobra (Technical University of Cluj-Napoca, Romania) p.70

**P1.6 Low Power Network Node for Ambient Monitoring and Heart Rate Measurement**

Thomas Tetzlaff (South Westphalia University of Applied Sciences, Germany); Michael Boor (South Westphalia University of Applied Sciences, Germany); Ulf Witkowski (South Westphalia University of Applied Sciences, Germany); Reza Zandian (South Westphalia University of Applied Sciences, Germany) p.75

**P1.7 Multichannel Airborne Ultrasonic Ranging System Based on the Piccolo C2000 MCU**

Claudio Cambini (University of Florence, Italy); Lorenzo Giuseppi (University of Florence, Italy); Marco Calzolari (University of Florence, Italy); Pietro Giannelli (University of Florence, Italy); Lorenzo Capineri (University of Florence, Italy) p.80

**P1.8 Hybrid Artificial Neural Network for Induction Motor Parameter Estimation**

Jose Gutierrez-Villalobos (Universidad Autónoma de Querétaro, Mexico); Moisés Agustín Martínez (Universidad Autónoma de Querétaro, Mexico); Fortino Mendoza (Universidad Autónoma de Querétaro, Mexico); Juvenal Rodríguez Reséndiz (Universidad Autónoma de Querétaro, Mexico); Rafael Rodríguez (Universidad Autónoma de Querétaro, Mexico) p.85

**P1.9 Compressive Sampling Experiments**

Carsten Roppel (University of Applied Sciences Schmalkalden, Germany); Martin Danz (University of Applied Sciences Schmalkalden, Germany) p.90

**P1.10 Deployment of 5GHz Real-Time Simplex Wireless SISO- And MISO-OFDM Transmission Using Matlab and the TMS320C6713 DSKs**

Sotiris Karabetsos (Technological Educational Institute (TEI) of Athens & Institute for Language and Speech Processing (ILSP) / RC Athena, Greece); Georgios Stoumpis (National and Kapodistrian University of Athens, Greece); Evangelos Pikasis (National and Kapodistrian University of Athens, Greece); Thomas Nikas (Technological Educational Institution of Athens, Greece); John Papanikolaou (Technological Educational Institute (TEI) of Athens, Greece); Grigorios Koulouras (Technological Educational Institute (TEI) of Athens, Greece); Athanasse Nassiopoulos (Technological Educational Institution of Athens, Greece) p.95

**P1.11 Toys as Tools in Embedded Engineering Education**

Josif Kjosev (University SS Cyril and Methodius - Skopje, Macedonia, the former Yugoslav Republic of); Aleksandar Lazarov (University SS Cyril and Methodius - Skopje, Macedonia, the former Yugoslav Republic of); Martin Stojanovski (University SS Cyril and Methodius - Skopje, Macedonia, the former Yugoslav Republic of); Mario Makraduli (University SS Cyril and Methodius - Skopje, Macedonia, the former Yugoslav Republic of) p.100

**P1.12 The Study of Microcontroller Based Embedded System for Smart Lighting Applications**

Ilya Galkin (Riga Technical University, Latvia); Olegs Tetervenoks (Riga Technical University, Latvia) p.105

**P1.13 REPTAR: A Universal Platform for Codesign Applications**

Alberto Dassatti (University of Applied Sciences Western Switzerland & HEIG-VD, Switzerland); Olivier Auberson (University of Applied Sciences Western Switzerland & HEIG-VD, Switzerland); Romain Bornet (University of Applied Sciences Western Switzerland & HEIG-VD, Switzerland); Etienne Messerli (University of Applied Sciences Western Switzerland & HEIG-VD & Institute REDS, Switzerland); Jérôme Stadelmann (University of Applied Sciences Western Switzerland & HEIG-VD, Switzerland); Yann Thoma (University of Applied Sciences Western Switzerland & HEIG-VD, Switzerland) p.109

**P1.14 Implementing Physical Models of Musical Instruments in the TMS320C6748**

Roy Saar (Tel Aviv University, Israel); Gal Levy (Tel-Aviv University, Israel); Jacob Fainguelernt (Tel-Aviv University, Israel) p.114

**P1.15 Implementation of Extended Kalman Filtering Algorithm with Improved Flux Estimator on TMS320F28335 Processor for Induction Sensorless Drive**

Michael Talanov (Ogarev Mordovia State University, Russia); Alexander Karasev (Ogarev Mordovia State University, Russia); Viktor Talanov (Ogarev Mordovia State University, Russia) p.119

**P1.16 Automatic Remote Correcting System for MOOCs**

Pierre-Yves Rochat (EPFL, Switzerland) p.124

**P1.17 Implementation of Morse Decoder on the TMS320C6748 DSP Development Kit**

Pavel Zahradnik (University of Technology Prague, Czech Republic); Boris Simak (Czech Technical University in Prague & Faculty of Electrical Engineering, Czech Republic) p.128

**S1: Show & Tell I**

**Thursday, 11 September 2014, 12:00–14:30**

Room: Plenaria delle divinità

Chair: Nuria Llin (Texas Instruments, Germany), Keith Thompson (University of Strathclyde, United Kingdom)

**Tut1: “The BeagleBone and its Application in Engineering Education”**

**Thursday, 11 September 2014, 13:30 –14:30**

Room: Oro Plenaria

Instructor: Dr. Derek Molloy (Dublin City University, Ireland)

**O4: Power I**

**Thursday, 11 September 2014, 14:30–15:30**

Room: Argento Plenaria

Chair: Gianluca Ippoliti (Università Politecnica delle Marche, Italy)

**14:30 Evaluation of a New Microcontroller Based Solution for Sensorless Control of Electrical Drives**

Matthias Blank (Georg-Simon-Ohm University of Applied Sciences Nuremberg, Germany); Philipp Löhdefink (Technische Hochschule Nürnberg Georg Simon Ohm, Germany); Benjamin Reinhardt (Georg-Simon-Ohm University of Applied Sciences Nuremberg, Germany); Armin Dietz (Georg-Simon-Ohm University of Applied Sciences Nuremberg, Germany) p.132

**14:50 A Study of Regenerative Energy Systems and Pump Applications in Distributed DC-Microgrids**

Stefan Oberlander-Hörath (Technische Hochschule Nürnberg Georg Simon Ohm, Germany); Philipp Löhdefink (Technische Hochschule Nürnberg Georg Simon Ohm, Germany); Michael Grillenberger (Technische Hochschule Nürnberg Georg Simon Ohm, Germany); Johannes Fürst

(Technische Hochschule Nürnberg Georg Simon Ohm, Germany); Armin Dietz (Georg-Simon-Ohm Hochschule Nürnberg, Germany); Sebastian Hörlin (Technische Hochschule Nürnberg Georg Simon Ohm, Germany); Andreas Gröger (Siemens, Germany) p.137

15:10 **Design of an Embedded Battery Management System with Passive Balancing**  
Kristaps Vitols (Riga Technical University, Latvia) p.142

## O5: Video

**Thursday, 11 September 2014, 14:30–15:30**

Room: Oro Plenaria

Chair: Iain Hunter (Texas Instruments, United Kingdom)

14:30 **An Extended Real-Time Compressive Tracking Method Using Weighted Multi-Frame Cosine Similarity Metric**

Mark Jenkins (Glasgow Caledonian University, United Kingdom); Peter Barrie (Glasgow Caledonian University, United Kingdom); Tom Buggy (Glasgow Caledonian University, United Kingdom); Gordon Morison (Glasgow Caledonian University, United Kingdom) p.147

14:50 **GOP Level Parallelism Implementation for Real-Time H264/AVC Video Encoder on Multicore DSP TMS320C6472**

Nejmeddine Bahri (National School of Engineers of Sfax, Tunisia); Thierry Grandpierre (ESIEE, France); Mohamed Ali Ben Ayed (ISECS Sfax Tunisia, Tunisia); Nouri Massmoudi (University of Sfax, Tunisia); Mohamed Akil (ESIEE Paris, France) p.152

15:10 **Real-Time Motion Classification of HD Video Sequences on Embedded Systems**

Dominic Springer (University of Erlangen-Nuremberg, Germany); Christian Herglotz (University of Erlangen-Nuremberg, Germany); Franz Simmet (AUDI AG, Germany); Dieter Niederkorn (AUDI AG, Germany); Andre Kaup (University of Erlangen-Nuremberg, Germany) p.157

## Refreshments

**Thursday, 11 September 2014, 15:30–16:00**

### Tut2: “InstaSPIN sensorless electrical drive solutions”

**Thursday, 11 September 2014, 16:00–17:00**

Room: Argento Plenaria

Instructor: Prof. Dr. ir. Duco W. J. Pulle (Director Emsynergy. RWTH Aachen, Germany)

### Tut3: “PREESM - Dataflow Programming of Multicore DSPs”

**Thursday, 11 September 2014, 16:00–17:00**

Room: Oro Plenaria

Instructor: Maxime Pelcat, Clément Guy, Karol Desnos (IETR/INSA Rennes, France)

## EDERC Banquet

**Thursday, 11 September 2014, 19:30–22:00**

### 5.3 Programme Details — Friday, 12 September 2014

#### Academic Keynote Address

Friday, 12 September 2014, 8:30–9:20

Room: Oro Plenaria

Chair: John J. Soraghan (University of Strathclyde, United Kingdom), Djordje Marinkovic (Texas Instruments, Germany)

8:30 **Academic Keynote Address: “Embedding Communication Systems in Power Lines”**  
Prof. Andrea M. Tonello (University of Udine and WiTiKee s.r.l., Italy)

#### O6: Education II

Friday, 12 September 2014, 9:20–10:00

Room: Oro Plenaria

Chair: John J. Soraghan (University of Strathclyde, United Kingdom), Djordje Marinkovic (Texas Instruments, Germany)

9:20 **Revamping a Lab Course for the Education of Students in Electronic Engineering**  
Miguel A. Garcia Perez (Polytech’Nice-Sophia, Université de Nice, France); Yves Leduc (Polytech’Nice-Sophia, Université de Nice & Former TI Fellow, Texas Instruments, France); Fabien Ferrero (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France) **p.162**

9:40 **SPIDER: A Synchronous Parameterized and Interfaced Dataflow-Based RTOS for Multicore DSPs**  
Julien Heulot (IETR, INSA Rennes & CNRS UMR 6164, UEB, France); Maxime Pelcat (INSA Rennes, France); Karol Desnos (INSA Rennes, France); Jean-François Nezan (IETR, France); Slaheddine Aridhi (Texas Instruments, France) **p.167**

#### Refreshments

Friday, 12 September 2014, 10:00–10:30

#### O7: Sensor Networks II

Friday, 12 September 2014, 10:30–12:00

Room: Oro Plenaria

Chair: Sivan Toledo (Tel-Aviv University, Israel)

10:30 **Tree Network Based on Bluetooth 4.0 for Wireless Sensor Network Applications**  
Bishnu Kumar Maharjan (South Westphalia University of Applied Sciences, Germany); Ulf Witkowski (South Westphalia University of Applied Sciences, Germany); Reza Zandian (South Westphalia University of Applied Sciences, Germany) **p.172**

10:50 **ToLHnet: A Low-Complexity Protocol for Mixed Wired and Wireless Low-Rate Control Networks**  
Giorgio Biagetti (Università Politecnica delle Marche, Italy); Paolo Crippa (Università Politecnica delle Marche, Italy); Alessandro Curzi (Università Politecnica delle Marche, Italy); Simone Orcioni (Università Politecnica delle Marche, Italy); Claudio Turchetti (Università Politecnica delle Marche, Italy) **p.177**

11:10 **Implementation of an IEEE 802.15.4 Compliant Multi-hop Wireless Sensor Network for Energy-efficient Sensor Data and Progressive Image Transmission**  
Volker Delpert (University of Applied Sciences Mittweida, Germany); Jan Kuhnert (University of Applied Sciences Mittweida, Germany); Silvio Roessler (University of Applied Sciences Mittweida, Germany) **p.182**

- 11:30 **FRAM Evaluation as Unified Memory for Convex Optimization Algorithms**  
Gionata Cimini (Università Politecnica delle Marche, Italy); Alberto Bemporad (IMT Institute for Advanced Studies Lucca, Italy); Gianluca Ippoliti (Università Politecnica delle Marche, Italy); Sauro Longhi (Università Politecnica delle Marche, Italy) p.187

**O8: Power II**  
**Friday, 12 September 2014, 10:30–12:00**

Room: Argento Plenaria

Chair: Jacob Fainguelernt (Tel-Aviv University, Israel)

- 10:30 **Rapid Prototyping of Multivariable PI Regulators for AC Drives Using TMS320-F2812**  
Marco Santececca (University of L'Aquila, Italy); Lino Di Leonardo (University of L'Aquila, Italy); Marco Tursini (University of L'Aquila, Italy) p.192
- 10:50 **Control Design of a Bearingless Flux-switching Slice Drive**  
Karlo Radman (Tehnički Fakultet u Rijeci & Linz Center of Mechatronics GmbH, Croatia); Wolfgang Gruber (Johannes Kepler University Linz & Institute for Electrical Drives and Power Electronics, Austria); Neven Bulic (University of Rijeka Faculty of Engineering, Croatia) p.197
- 11:10 **Fast Prototyping of a Scaled AGV for the Testing of Stability Control for Industrial Vehicles**  
Benedetto Allotta (University of Florence, Italy); Riccardo Costanzi (University of Florence, Italy); Niccolò Monni (University of Florence, Italy); Marco Natalini (University of Florence, Italy); Luca Pugi (University of Florence & Dip. Ingegneria Industriale, Italy); Alessandro Ridolfi (University of Florence, Italy) p.202
- 11:30 **Microcontroller Based Maximum Power Point Tracking Through FCC and MLP Neural Networks**  
Gabriele Maria Lozito (Roma Tre University, Italy); Ludovica Bozzoli (Università degli Studi di Roma Tre, Italy); Alessandro Salvini (Roma Tre University, Italy) p.207

**P2: Poster II**  
**Friday, 12 September 2014, 12:00–14:30**

Room: Plenaria delle divinità

Chair: Carmine Clemente (University of Strathclyde, United Kingdom), Gaetano Di Caterina (University of Strathclyde, United Kingdom)

- P2.1 **Acquisition and Processing of the Physiologic Signal to Prevent Driving Accidents**  
Mario Malcangi (Università degli Studi di Milano, Italy) p.212
- P2.2 **Accurate Dynamic Characterization of Sine-Waves by Means of the ADS1258EVM-PDK Kit**  
Daniel Belega (University of Timisoara, Romania); Dan Stoiciu (Politehnica University of Timisoara, Romania) p.216
- P2.3 **Low-Power Voting Device for Use in Education and Polls Employing TI's CC2530 RF Chip**  
Fabian Knutti (HSR - University of Applied Sciences Rapperswil & ICOM Institute for Communication Systems, Switzerland); Nicolas Tobler (University of Applied Sciences Rapperswil, Switzerland); Heinz Mathis (University of Applied Sciences Rapperswil, Switzerland) p.221
- P2.4 **Integrating the Accelerometer of the AM335X SITARA Starter KIT in a Qt Application**

Claudiu Mosneang (Politehnica University of Timisoara, Romania); Septimiu Mischie (Politehnica University of Timisoara, Romania); Robert Pazsitka (Politehnica University of Timisoara, Romania) **p.225**

**P2.5 An Embedded Smart Agile Pixel Imager for Lasers**

Juan Pablo La Torre (University College Cork, Ireland); M. Junaid Amin (University College Cork, Ireland); Michele Magno (ETH Zurich and University of Bologna, Switzerland); Nabeel Riza (University College Cork & Tydall National Institute, Ireland) **p.230**

**P2.6 A Motor Controller Using Field Oriented Control and Hall Effect Rotor Position Sensors: Simulation and Implementation**

David Arbelaez (Queensland University of Technology, Australia); Kyran Findlater (Queensland University of Technology, Australia); Vinod Chandran (Queensland University of Technology, Australia)

**P2.7 An Easy-To-Build Electronic Spintop for Young Engineers**

Nicola Ramagnano (University of Applied Sciences of Eastern Switzerland in Rapperswil, Switzerland); Heinz Mathis (University of Applied Sciences Rapperswil, Switzerland) **p.240**

**P2.8 A Level Sensor for Fluids Based on Hydrostatic Deformation with Piezoelectric Generated Sounds in a Low Frequency Range**

Alexander Jahn (University of Applied Sciences Schmalkalden, Germany); Falko Ehrle (University of Applied Sciences Schmalkalden, Germany); Carsten Roppel (University of Applied Sciences Schmalkalden, Germany) **p.245**

**P2.9 HIL Validation of an Embedded System Acting as a Nonlinear Takagi-Sugeno State Observer on an Arduino Board**

Maxime Feingesicht (Hautes Etudes d'Ingénieur Lille, France); Severus Olteanu (University of Lille 1, France); Abdelouahab Aitouche (LAGIS - HEI Lille & Hautes Etudes d'Ingénieur (HEI) Lille, France); Lotfi Belkoura (LAGIS/ Univ Lille1, France) **p.250**

**P2.10 Hardware in the Loop Testing of a Steam Turbine Bypass Regulator Using a TI C2000 Micro-Controller**

Emanuele Galardi (University of Florence, Italy); Luca Pugi (University of Florence & Dip. Ingegneria Industriale, Italy); Nicola Lucchesi (Vela ABV Spa, Italy); Andrea Rindi (University of Florence, Italy) **p.255**

**P2.11 Capacitance Measurement with MSP430 Microcontrollers**

Olev Martens (Tallinn University of Technology & Competence Center ELIKO, Estonia); Siim Pille (Tallinn University of Technology, Estonia); Marko Reidla (Tallinn University of Technology, Estonia) **p.260**

**P2.12 Low-cost Wireless Surface EMG Sensor Using the MSP430 Microcontroller**

Armand Beneteau (University of Strathclyde, United Kingdom); Gaetano Di Caterina (University of Strathclyde, United Kingdom); Lykourgos Petropoulakis (University of Strathclyde, United Kingdom); John J. Soraghan (University of Strathclyde, United Kingdom) **p.264**

**P2.13 Fault Prognosis for Rotating Electrical Machines Monitoring Using Recursive Least Square**

Matteo Rocchi (Polytechnic University of Marche, Italy); Fernando Mosciaro (Polytechnic University of Marche, Italy); Francesco Grottesi (Polytechnic University of Marche, Italy); Marco Scortichini (Polytechnic University of Marche, Italy); Andrea Giantomassi (Polytechnic University of Marche, Italy); Matteo Pirro (Università Politecnica Delle Marche, Italy); Massimo Grisostomi (Università Politecnica delle Marche, Italy); Gianluca Ippoliti (Università Politecnica delle Marche, Italy) **p.269**

**P2.14 An Implementation Focused Approach to Teaching Image Processing and Machine Vision - From Theory to Beagleboard**

Gordon Morison (Glasgow Caledonian University, United Kingdom); Mark Jenkins (Glasgow Caledonian University, United Kingdom); Tom Buggy (Glasgow Caledonian University, United Kingdom); Peter Barrie (Glasgow Caledonian University, United Kingdom) **p.274**

**P2.15 Real-Time Bilateral Filtering of Ultrasound Images Through Highly Optimized DSP Implementation**

Alessandro Dallai (University of Florence, Italy); Stefano Ricci (University of Florence, Italy) **p.278**

**P2.16 ~~Four Axis Digital Readout System with Bluetooth Interface~~**

~~Rene Rettkowski (Westphalian University of Applied Sciences, Germany); Fredson Phiri (University of Namibia, Namibia); Udo Jorezyk (Westphalian University of Applied Sciences, Germany)~~ **NO SHOW** **p.282**

**P2.17 Interactive Tool for Mechatronic Systems: Two Industrial Robot Cases**

Juvenal Rodríguez Reséndiz (Universidad Autónoma de Querétaro, Mexico); Edgar A. Araiza (UAQ, Mexico); Jose Gutierrez-Villalobos (Universidad Autónoma de Querétaro, Mexico); Moisés Agustín Martínez (Universidad Autónoma de Querétaro, Mexico); Fortino Mendoza (Universidad Autónoma de Querétaro, Mexico); Miguel Martínez Prado (Universidad Autónoma de Querétaro, Mexico); Manuel Toledano-Ayala (Universidad Autónoma de Querétaro & Facultad de Ingeniería, Mexico) **p.286**

**S2: Show & Tell II**

**Friday, 12 September 2014, 12:00–14:30**

Room: Plenaria delle divinità

Chair: Nuria Llin (Texas Instruments, Germany), Keith Thompson (University of Strathclyde, United Kingdom)

**Invited Industrial Talk**

**Friday, 12 September 2014, 13:30–14:30**

Room: Oro Plenaria

Chair: Doug Phillips (WW Embedded University Marketing, Texas Instruments, USA)

**13:30 Invited Industrial Talk: “Microsoft. Connecting embedded systems to the cloud: Data ingress and analysis”**

Dr. Holger Kenn (Microsoft DX, Germany)

**O9: Applications I**

**Friday, 12 September 2014, 14:30–15:30**

Room: Argento Plenaria

Chair: Yves Leduc (Polytech’Nice-Sophia, Université de Nice & Former TI Fellow, Texas Instruments, France)

**14:30 Lightweight Low-Cost Wildlife Tracking Tags Using Integrated Transceivers**

Sivan Toledo (Tel-Aviv University, Israel); Oren Kishon (Tel-Aviv University, Israel); Yotam Orchan (The Hebrew University of Jerusalem, Israel); Yoav Bartan (The Hebrew University of Jerusalem, Israel); Nir Sapir (The Hebrew University of Jerusalem, Israel); Yoni Vortman (University of Haifa, Israel); Ran Nathan (The Hebrew University of Jerusalem, Israel) **p.291**

**14:50 Real-time Environmental Emission Monitoring on Construction Sites**

Tobias Gädeke (Karlsruhe Institute of Technology (KIT), Germany); Frank Hartmann (Karlsruher Institut für Technologie (KIT), Germany); Lukasz Niestoruk (Karlsruhe Institute of Technology, Germany); Markus Reinhardt (Karlsruhe Institute of Technology (KIT), Germany); Wilhelm Stork (Karlsruhe Institute of Technology, Germany) **p.296**

**15:10 Implementation and Evaluation of A Pothole Detection System on TI C6678 Digital Signal Processor**

Chee Kin Chan (University of Bristol, United Kingdom); Yuan Gao (University of Bristol, United Kingdom); Zhen Zhang (University of Bristol, United Kingdom); Naim Dahnoun (University of Bristol, United Kingdom) **p.301**

**O10: Applications II****Friday, 12 September 2014, 14:30–15:30**

Room: Oro Plenaria

Chair: Pavel Zahradnik (University of Technology Prague, Czech Republic)

**14:30 Reducing the Latency in Live Music Transmission with the BeagleBoard xM Through Resampling**

Leonardo Gabrielli (Università Politecnica delle Marche, Italy); Michele Bussolotto (Università Politecnica delle Marche, Italy); Stefano Squartini (Università Politecnica delle Marche, Italy) **p.306**

**14:50 A Real-Time Implementation of an Acoustic Novelty Detector on the BeagleBoard-xM**

Roberto Bonfigli (Università Politecnica delle Marche, Italy); Giacomo Ferroni (Università Politecnica delle Marche, Italy); Emanuele Principi (Università Politecnica delle Marche & A3Lab, Italy); Stefano Squartini (Università Politecnica delle Marche, Italy); Francesco Piazza (Università Politecnica delle Marche, Italy) **p.311**

**15:10 Multicore DSP-Based Front-End Board for a High Channel, Modular, Ultrasound Research System**

Alessandro Dallai (University of Florence, Italy); Enrico Boni (University of Florence, Italy); Luca Bassi (University of Florence, Italy); Stefano Ricci (University of Florence, Italy); Francesco Guidi (University of Florence, Italy); Piero Tortoli (University of Florence, Italy) **p.316**

**Refreshments****Friday, 12 September 2014, 15:30–16:00****Forum: Teaching Embedded Design in Universities****Friday, 12 September 2014, 16:00–17:00**

Room: Oro Plenaria

Chair: Gordon Morison (Glasgow Caledonian University, United Kingdom)

**Prize Giving and Close****Friday, 12 September 2014, 17:00–17:30**

Room: Oro Plenaria

Chair: Djordje Marinkovic (Texas Instruments, Germany), John J. Soraghan (University of Strathclyde, United Kingdom)