2012 5th European DSP Education and Research Conference

(EDERC 2012)

Amsterdam, Netherlands
13 – 14 September 2012
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2 Committees

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  Djordje Marinkovic, Texas Instruments Europe

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  Piero Tortoli, University of Florence, Italy
  Joël Trubuil, Télécom Bretagne, France
  Sergei Vitiazey, Ryazan State Radio Engineering University, Russia
  Stephan Weiss, University of Strathclyde, Glasgow, Scotland, UK
  Evagellos Zigouris, University of Patras, Greece
3 Workshops

**Workshop WK1: MSP430**  
**Thursday, September 13, 13:10–14:40**

**Venue:** Room Amsterdam 2  
**Instructor:** Pedro Dinis, Antonio Espirito Santo, Bruno Ribeiro (University of Beira Interior, Portugal)

This workshop provides a hands-on practical start to the Texas Instruments MSP-EXP430F5529 Experimenter board and the eZ430-Chronos watch. It assumes that attenders have some basic knowledge of C programming. Workshop syllabus:

- Presentation of the MSP430 Teaching ROM contents:
- Exploring the USB Developers Package for MSP430 with the MSP-EXP430F5529 Experimenter board:
  - MSP-EXP430F5529 Experimenter board overview;
  - Introduction to the USB Developers Package;
  - CDC (Communications Device Class) interface with personal computer.
- Exploring the eZ430-Chronos watch:
  - Introduction to the software and hardware;
  - How to develop applications with the eZ430-Chronos;
  - Developing a temperature logger.

**Workshop WK2: C6000**  
**Thursday, September 13, 16:30–19:00**

**Venue:** Room Amsterdam 2  
**Instructor:** Jacob Faingueuernt (Tel-Aviv University, Israel)

This workshop will introduce the use of the TI OMAP-L138 eXperimenter for hands-on DSP teaching, using its C6748 floating-point DSP core and Code Composer Studio and is taught by author and instructor Jacob Faingueuernt from Tel Aviv University. The OMAP-L138/C6748 eXperimenter TMDSEXPL138-UNV is a low-cost development system utilizing TI's dual-core, ARM + DSP OMAP-L138 processor. The TI University Program is recommending this as the DSP development system that will be a successor to the C6713 DSK with increased performance and additional teaching options. Participants of the workshop will perform hands-on lab exercises concentrating on programming the C6748 DSP core using Eclipse-based Code Composer Studio. The workshop will demonstrate how hands-on, real-time experiments from the new and updated C6000 Teaching ROM may be carried out using the eXperimenter board. Hands-on DSP teaching using the OMAP-L138 eXperimenter may be used to introduce students to important DSP concepts, real-time programming issues/techniques, use of Code Composer Studio, embedded system concepts, and to the architecture and capabilities of TI’s OMAP-L138 processor.

**Workshop WK3: Stellaris Cortex-M3**  
**Friday, September 14, 13:00–15:00**

**Venue:** Room Amsterdam 2  
**Instructor:** Ralf Gessler (Heilbronn University, Germany)

Recently, the Generalized DFT (GDFT) exploiting the entire phase space has been forwarded in the literature as an extension to DFT. GDFT with non-linear phase functions has reduced correlations compared to DFT. GDFT framework is a powerful mathematical tool to design optimal constant modulus sets adaptively tracking channel variations in order to minimize BER degradations due to ISI, ICI and PAPR characteristics. We will show that GDFT based OFDM methods significantly outperform the widely used DFT based systems. We will also present design methods offering computationally efficient implementations of GDFT as a low cost modification to the celebrated FFT algorithms.
## 4 Technical Program

### 4.1 List of Technical Sessions

<table>
<thead>
<tr>
<th>Education Sessions</th>
<th>Thursday 9:30 – 10:30</th>
<th>Amsterdam 3+4</th>
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<tbody>
<tr>
<td>E1  Education Session 1</td>
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<td>E2  Education Session 2</td>
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<tr>
<th>Research Oral Sessions</th>
<th>Thursday 11:10 – 12:30</th>
<th>Amsterdam 3+4</th>
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<tr>
<td>EA  Embedded Algorithms</td>
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<td>HS  Hardware Systems</td>
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<td>BS  Biomedical Systems</td>
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<td>PS  Power Systems</td>
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<td>CS  Communications Systems</td>
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<td>RC  Robotics and Control</td>
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<td>MS  Multimedia Systems</td>
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<tr>
<th>Poster and Demonstration Sessions</th>
<th>Thursday 12:30 – 14:40</th>
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<tbody>
<tr>
<td>POS1    Poster Session 1</td>
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<td>POS2    Poster Session 2</td>
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<td>SD1     Special Demonstration Session</td>
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### 4.2 Program Overview

**Thursday, 13 September 2012**

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<tr>
<td>8.30 Welcome / Keynote 1</td>
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<td>9.30</td>
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<td>10.30 Refreshments (Room Erasmus)</td>
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<td>11.10 Embedded Algorithms</td>
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<td>12.30 Hardware Systems</td>
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<td>13.10 MSP430 Workshop</td>
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<td>14.40 Biomedical Systems</td>
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<td>16.00 Refreshments (Room Erasmus)</td>
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<td>16.30 C6000 Workshop</td>
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<td>16.40 ARM Tutorial</td>
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<td>19.00 EDERC 2012 Banquet (Room Erasmus)</td>
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**Friday, 14 September 2012**

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<td>10.30 Refreshments (Room Erasmus)</td>
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<td>11.10 Comms Systems</td>
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<td>12.30 Robotics &amp; Control</td>
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<td>13.00 Stellaris Workshop</td>
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<tr>
<td>14.40 Multimedia Systems</td>
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<td>16.20 Refreshments (Room Erasmus)</td>
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<td>16.50 Prize Giving and Closing</td>
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4.3 Technical Programme Details — Thursday, September 13

Opening Remarks and Industrial Keynote Address  
Thursday, 13 September, 8:15 –9:30

Room: Amsterdam 3+4  
Chair: John J. Soraghan (University of Strathclyde, Scotland)

8:15 Welcome  
John J. Soraghan, Stephan Weiss, Djordje Marinkovic (Chairs)

8:30 Industrial Keynote Address  
Fernando Mujica (Texas Instruments)

E1: Education Session 1  
Thursday, September 13, 9:30 –10:30

Room: Amsterdam 3+4  
Chair: Cathy Wicks (Texas Instruments)

9:30 Developing a Dynamic Algorithm for Path Planning of Line Follower Robot  
Mustafa Engin (Ege University & Ege University Ege Higher Vocational School, Turkey)

9:50 Implementing a MIDI Synthesizer Using the TMS320C6748  
Ilan Yaish (Tel-Aviv University, Israel); Jacob Fainguelernt (Tel-Aviv University, Israel)

10:10 Hands on ARM Based Embedded System Experiments Using OMAP-L138 Experimenter Kit  
Musa Aydin (Istanbul Aydin University, Turkey); Rifat Benveniste (Istanbul Aydin University, Turkey)

Refreshments  
Thursday, September 13, 10:30 –11:10

Room: Erasmus

EA: Embedded Algorithms  
Thursday, September 13, 11:10 –12:30

Room: Amsterdam 3  
Chair: Iain Hunter (Texas Instruments, United Kingdom)

11:10 Comparison of a Sensor Fusion Algorithm Implementation on a C674X DSP and a CORTEX A8 Core  
Hans-Peter Brückner (Leibniz Universität Hannover & Institut of Microelectronic Systems, Germany); Matthias Wielage (Leibniz Universität Hannover, Germany); Holger Blume (Leibniz Universität Hannover, Germany)

11:30 Implementation of a dual-phase lock-in amplifier on a TMS320C5515 digital signal processor  
Martin Hofmann (Regensburg University of Applied Sciences, Germany); Rudolf Bierl (Regensburg University of Applied Sciences, Germany); Thomas Rueck (Regensburg University of Applied Sciences, Germany)

11:50 An efficient DSP-based Implementation of a Fast Convolution Approach with Non Uniform Partitioning  
Andrea Primavera (Università Politecnica delle Marche, Italy); Stefania Cecchi (Università Politecnica delle Marche, Italy); Laura Romoli (Università Politecnica delle Marche, Italy); Francesco Piazza (Università Politecnica delle Marche, Italy); Marco Moschetti (Korg Italy, Italy)
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>12:10</td>
<td>An Efficient DSP Implementation of a Dynamic Convolution Approach Using Principal Component Analysis</td>
<td>Andrea Primavera (Università Politecnica delle Marche, Italy); Stefania Cecchi (Università Politecnica delle Marche, Italy); Laura Romoli (Università Politecnica delle Marche, Italy); Michele Gasparini (Università Politecnica delle Marche, Italy); Francesco Piazza (Università Politecnica delle Marche, Italy)</td>
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<tr>
<td><strong>HS: Hardware Systems</strong></td>
<td>Thursday, September 13, 11:10 –12:30</td>
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<td>11:10</td>
<td>Low Power High-Performance Computing on the BeagleBoard Platform</td>
<td>Emanuele Principi (Università Politecnica delle Marche &amp; A3Lab, Italy); Vito Colagiacoomo (DI-BET - UnivPM, Italy); Stefano Squartini (Università Politecnica delle Marche, Italy); Francesco Piazza (Università Politecnica delle Marche, Italy)</td>
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<tr>
<td>11:30</td>
<td>Development of Multi-Channel Analogue Signal Data Logger based on MSP430</td>
<td>Alexander Suzdalenko (Riga Technical University, Latvia); Andris Lazdans (Riga Technical University, Latvia); Ilya Galkin (Riga Technical University, Latvia)</td>
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<tr>
<td>11:50</td>
<td>TMS320F28335-based high-accuracy complex network analyzer instrument</td>
<td>Marko Reidla (Tallinn University of Technology, Estonia); Olev Martens (Tallinn University of Technology &amp; Competence Center ELIKO, Estonia); Raul Land (Tallinn University of Technology, Estonia)</td>
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<td>12:10</td>
<td>System for Real-Time Data Acquisition and Processing on a Hail-Fighter Aeroplane</td>
<td>Andreas Bernhardt (University of Applied Sciences, Rosenheim, Germany); Martin Heigl (University of Applied Sciences, Rosenheim, Germany); Martin Versen (University of Applied Sciences, Rosenheim, Germany); Peter Viehhauser (University of Applied Sciences, Rosenheim, Germany); Peter Zentgraf (University of Applied Sciences, Rosenheim, Germany)</td>
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<tr>
<td><strong>POS1: Poster Session 1</strong></td>
<td>Thursday, September 13, 12:30 –14:40</td>
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<td>12:30</td>
<td>Simple and cheap measurement of FRAM current consumption and performance data</td>
<td>Tilmann Krueger (Hochschule Mannheim, Germany)</td>
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<tr>
<td>12:30</td>
<td>Feasibility Study: a DM3730-based data acquisition and processing solution</td>
<td>Ago Molder (Tallinn University of Technology, Estonia); Marko Reidla (Tallinn University of Technology, Estonia); Olev Martens (Tallinn University of Technology &amp; Competence Center ELIKO, Estonia); Raul Land (Tallinn University of Technology, Estonia)</td>
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<tr>
<td>12:30</td>
<td>Modular Kernel for Small Micro-Controllers</td>
<td>Ulf Witkowski (South Westphalia University of Applied Sciences, Germany); Ralf Stemmer (South Westphalia University of Applied Sciences, Germany)</td>
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<tr>
<td>12:30</td>
<td>FIR Filters on the Eight-core DSP TMS320C6678</td>
<td>Pavel Zahradnik (University of Technology Prague, Czech Republic); Boris Simak (Czech Technical University in Prague &amp; Faculty of Electrical Engineering, Czech Republic); Miroslav Vlcek (University of Technology Prague, Czech Republic); Tomas Sadiak (Czech Technical University of Prague, Czech Republic)</td>
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<tr>
<td>12:30</td>
<td>Real-Time DSP Applications Remotely Controlled Through Customized GUIs</td>
<td>Athanasios Kalantzopoulos (University of Patras, Greece); Evagelos Zigouris (University of Patras, Greece)</td>
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POS1.6 Time-Domain Generalized Cross Correlation Phase Transform Sound Source Localization for Small Microphone Arrays  
Bert Van Den Broeck (KULeuven - ESAT - SISTA / KHKempen - Mobilab, Belgium); Alexander Bertrand (KU Leuven, University of Leuven & IBBT Future Health Department, Belgium); Peter Karsmakers (Katholieke Universiteit Leuven, Belgium); Bart Vaurnumste (MOBILAB, Katholieke Hogeschool Kempen & SCD/ESAT, Katholieke Universiteit Leuven, Leuven, Belgium); Hugo Vanhamme (Universiteit Leuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium)

POS1.7 Piccolo-stick and PCB-coil based simple coin validator Marko Reidla (Tallinn University of Technology, Estonia)  
Marko Reidla (Tallinn University of Technology, Estonia); Olev Martens (Tallinn University of Technology & Competence Center ELIKO, Estonia); Raul Land (Tallinn University of Technology, Estonia); Marek Rist (Tallinn University of Technology, Estonia)

POS1.8 Sun Tracking Control Strategy for Improved Reliability and Performance  
Mustafa Engin (Ege University & Ege University Ege Higher Vocational School, Turkey); Dilad Engin (Ege University & Ege Vocational School, Turkey)

POS1.9 Embedded SVM on TMS320C6713 for Signal Prediction in Classification and Regression Applications  
Jaime Zabalza (University of Strathclyde, United Kingdom); Jinchang Ren (University of Strathclyde, United Kingdom); Carmine Clemente (University of Strathclyde, United Kingdom); Gaetano Di Caterina (University of Strathclyde, United Kingdom); John J Soraghan (University of Strathclyde, United Kingdom)

POS1.10 Educational Remote Lab Concept for Energy Harvesting Enhanced Wireless Sensor Networks  
Leander B Hörmann (Graz University of Technology, Austria); Michael Steinberger (TU Graz, Austria); Michael Kalcher (Technische Universität Graz, Austria); Christian Kreiner (Graz University of Technology, Austria)

POS1.11 Fast Mass Programming and PWM Controllers for Super Sonic GC-MS Using DSP  
Eli Flaxer (Tel-Aviv Academic College of Engineering, Israel); Tal Alon (Tel-Aviv Academic College of Engineering, Israel)

POS1.12 Smart Filament Emission Controller for Supersonic Gas Chromatography-Mass Spectrometry Using Real Time Digital Signal Processor  
Eli Flaxer (Tel-Aviv Academic College of Engineering, Israel)

POS1.13 UTP Cable Length Measuring Instrument Featuring TI’s Interface Circuits  
Josif Kjosev (University of Skopje, Macedonia, the former Yugoslav Republic of); Darko Cvetkovski (Faculty of Electrical Engineering and Information Technologies, Macedonia, the former Yugoslav Republic of); Aleksandar Popovikj (University SS Cyril and Methodius, Macedonia, the former Yugoslav Republic of)

POS1.14 TVWS Filter Bank Transceiver on OMAP-L137 Evaluation Module  
Ross Elliot (University of Strathclyde, United Kingdom); Martin Enderwitz (University of Strathclyde, United Kingdom); Faisal Darbari (University of Strathclyde, Glasgow, United Kingdom); Louise Crockett (University of Strathclyde, United Kingdom); Stephan Weiss (University of Strathclyde, United Kingdom); Robert Stewart (University of Strathclyde, United Kingdom)

Special Demonstration Session  
Thursday, September 13, 12:30 –14:40  
Room: Vide  
Chair: Gaetano Di Caterina (University of Strathclyde, United Kingdom)

BS: Biomedical Systems  
Thursday, September 13, 14:40 –16:00  
Room: Amsterdam 3  
Chair: Maik Pflugradt (TU Berlin, Germany)
14:40  MSP430 Implementation of Wavelet Transform for Purposes of Physiological Signals Processing  
Sasa Knezevic (University of Montenegro, Montenegro); Radovan Stojanovic (University of Montenegro, Montenegro)

15:00  Multi-Channel Biosignal Processing On An OMAP3530 System  
Maik Pfugradt (TU Berlin, Germany); Neels Hofmeyr (TU Berlin, Germany); Reinhold Orglmeister (TU Berlin, Germany)

15:20  Wireless System for Remote Monitoring of Atrial Fibrillation  
Cristian Rotaru (Gheorghe Asachi Technical University of Iasi, Romania); Dragos Arotaritei ("Gr. T. Popa" University of Medicine and Pharmacy Iasi, Romania); Vasile Manta (Gheorghe Asachi Technical University of Iasi, Romania)

15:40  A Concept for Wearable Long-Term Urinary Bladder Monitoring with Ultrasound. Feasibility study  
Łukasz Niestoruk (Karlsruhe Institute of Technology, Germany); Thorsten Beuth (Karlsruhe Institute of Technology & ITIV - Institute for Information Processing Technologies, Germany); Klaus Petry (Karlsruhe Institute of Technology, Germany); Matthias Balzer (Karlsruhe Institute of Technology, Germany); Wilhelm Stork (University of Karlsruhe, Greece); Müller-Glaser (University of Karlsruhe, Germany)

PS: Power Systems
Thursday, September 13, 14:40 –16:00

Room: Amsterdam 4
Chair: Neven Bulic (University of Rijeka Faculty of Engineering, Croatia)

14:40  DSP control of a bidirectional battery charger for plug-in electric vehicles  
Manuele Bertoluzzo (University of Padova, Italy); Giuseppe Buja (University of Padova, Italy); Andrea Segala (University of Padova, Italy)

15:00  Wireless low cost embedded solution for electrical motors control  
Mirela Trusca (TU Cluj, Romania); Dorin Petreus (Tehnical University of Cluj-Napoca, Romania); Radu Munteanu (Technical University of Cluj-Napoca, Romania); Ioan Valentin Sita (Technical University of Cluj Napoca, Romania); Petru Dobra (Technical University of Cluj-Napoca, Romania)

15:20  A Bidirectional DC/DC Interleaved Converter For Supercapacitor Applications  
Mauro Carpita (University of Applied Sciences of Western Switzerland, Switzerland); Michael De Vivo (University of Applied Sciences of Western Switzerland, Switzerland); Serge Gavin (University of Applied Sciences of Western Switzerland & HEIG-VD, Switzerland)

15:40  DSP-Based Electronic Control Unit for Fault-Tolerant Double Drive Application  
Giuseppe Fabri (University of L’Aquila, Italy); Emidio Della Loggia (University of L’Aquila, Italy); Marco Tursini (University of L’Aquila, Italy)

Refreshments
Thursday, September 13, 16:00 –16:30

Room: Erasmus

ARM Tutorial Session
Thursday, September 13, 16:40 –18:40

Room: Amsterdam 3+4
Chair: Joe Bungo (ARM, United Kingdom)

EDERCC 2012 Banquet
Thursday, September 13, 19:00 –20:00

Room: Erasmus
4.4 Technical Programme Details — Friday, September 14

**Keynote Address**

**Friday, September 14, 8:30 –9:30**

Room: Amsterdam3+4  
Chair: Stephan Weiss (University of Strathclyde, United Kingdom)

8:30 **Keynote Address: Signal Processing Challenges in Digital Hearing Aids**  
Marc Moonen (Katholieke Universiteit Leuven, Belgium)

**E2: Education Session 1**  
**Friday, September 14, 9:30 –10:30**

Room: Amsterdam 3+4  
Chair: Yair Moshe (Technion - Israel Institute of Technology, Israel)

9:30 **An educational DSP platform based on a TMS320C5505 eZdsp**  
Rick Hilkens (Eindhoven University of Technology, The Netherlands); Brian Bloemendal (Eindhoven University of Technology, The Netherlands)

9:50 **OMAP-L138 Low Cost Development Kit (LCDK) for Hands-on DSP Teaching**  
Donald Reay (Heriot-Watt University, United Kingdom)

10:10 **An integrated approach to teaching embedded systems early in the curriculum - flip flops to pong**  
Gordon Morison (Glasgow Caledonian University, United Kingdom); Peter Barrie (Glasgow Caledonian University, United Kingdom)

**Refreshments**

**Friday, September 14, 10:30 –11:10**

Room: Erasmus

**CS: Communication Systems**  
**Friday, September 14, 11:10 –12:30**

Room: Amsterdam 3  
Chair: Stephan Weiss (University of Strathclyde, United Kingdom)

11:10 **Hybrid Autonomous Transceivers**  
Francesco Orfei (Università degli Studi di Perugia & Wisepower Srl, Italy); Riccardo Mincigrucci (Università degli Studi di Perugia, Italy); Igor Neri (Università degli Studi di Perugia, Italy); Flavio Travasso (Università degli Studi di Perugia, Italy); Helios Vocca (Università degli Studi di Perugia, Italy); Luca Gammaitoni (Università degli Studi di Perugia, Italy)

11:30 **A Laboratory Experiment for Real-time Echo Cancellation using BeagleBoard**  
Ori Bryt (Technion - Israel Institute of Technology, Israel); Asaf Elron (Technion - Israel Institute of Technology, Israel); Pavel Lifshits (Technion - Israel Institute of Technology, Israel); Tsahee Zidenberg (Technion - Israel Institute of Technology, Israel); Yair Moshe (Technion - Israel Institute of Technology, Israel); Nimrod Peleg (Technion, IIT, Israel)

11:50 **OFDM, SC-FDMA and MC-CDMA Educational Wireless Transceivers Using Matlab and the TMS320C6713 DSK**  
Evangelos Pikasis (National and Kapodistrian University of Athens, Greece); Sotiris Karabetos (Technological Educational Institute (TEI) of Athens & Institute for Language and Speech Processing (ILSP), Greece); Thomas Nikas (Technological Educational Institution of Athens, Greece); Athanasse Nassiopolous (Technological Educational Institution of Athens, Greece)

12:10 **A Narrowband PLC Modem Design Project for an International DSP Course**  
Carsten Roppel (University of Applied Sciences Schmalkalden, Germany)
RC: Robotics and Control
Friday, September 14, 11:10 –12:30

Room: Amsterdam 4
Chair: Frank Bormann (University of Applied Sciences Zwickau, Germany)

11:10 Robust Sensorless Speed Control of Permanent Magnet Synchronous Motors: a C2000 based Implementation
Coacci Davide (Università Politecnica delle Marche, Italy); Gianluca Ippoliti (Università Politecnica delle Marche, Italy); Sauro Longhi (Università Politecnica delle Marche, Italy); Giuseppe Orlando (Università Politecnica delle Marche, Italy); Matteo Pirro (Università Politecnica Delle Marche, Italy); Stefano Squartini (Università Politecnica delle Marche, Italy)

11:30 Rapid control prototyping toolbox for the STELLARIS LM3S8000 microcontrollers
Radu Duma (Technical University of Cluj Napoca, Romania); Petru Dobra (Technical University of Cluj-Napoca, Romania); Ioan Valentin Sita (Technical University of Cluj Napoca, Romania); Dorin Petreus (Technical University of Cluj-Napoca, Romania)

11:50 A Green Autonomous Self-sustaining Sensor Node for counting people in office environments
Florian Wahl (Eindhoven University of Technology, The Netherlands); Marija Milenkovic (TU Eindhoven, The Netherlands); Oliver Amft (TU Eindhoven, The Netherlands)

12:10 A DSP-based Real-Time simulation equipment for fast motor control development
Carlo Olivieri (University of L’Aquila, Italy); Giuseppe Fabri (University of L’Aquila, Italy); Marco Tursini (University of L’Aquila, Italy)

POS2: Poster Session 2
Friday, September 14, 12:30 –15:00

Room: Vide
Chair: Carmine Clemente (University of Strathclyde, United Kingdom)

POS2.1 Test Bench for Signal Processing Modules Examination and Efficiency Rating
Sergei Vitiazev (Ryazan State Radio Engineering University, Russia)

POS2.2 TMS320F28069-based impedance spectroscopy with binary excitation
Marek Rist (Tallinn University of Technology, Estonia); Marko Reidla (Tallinn University of Technology, Estonia); Mart Min (Tallinn University of Technology, Estonia); Toomas Parve (Tallinn University of Technology, Estonia); Olev Martens (Tallinn University of Technology & Competence Center ELIKO, Estonia); Raul Land (Tallinn University of Technology, Estonia)

POS2.3 Automated Code Generation of Streaming Applications for C6000 Multicore DSPs
Maximilian Odendahl (RWTH Aachen University, Germany); Weihua Sheng (RWTH Aachen University, Germany); Miguel Aguilar (RWTH Aachen University, Germany); Rainer Leupers (RWTH Aachen University, Germany); Gerd H. Ascheid (RWTH Aachen University, Germany)

POS2.4 Model based design and automated code generation from Simulink targeted for TMS570MCU
Vojtech Lambersky (VUT Brno, Czech Republic)

POS2.5 Video Resizing and Compression on a DVM for Networked Infotainment Applications
Syed Abbas Ali (Ajman University of Science & Technology, UAE); Liaqat Hayat (Yanbu Industrial College, Saudi Arabia)

POS2.6 On-Line Rotor Resistance Estimation for an Induction Motor Drive Based on DSC
Moiss Agustn Martnez (Universidad Autonoma de Queretaro, Mexico); Fortino Mendoza (Universidad Autonoma de Queretaro, Mexico); Juvenal Rodriguez Resndiz (Universidad Autonoma de Queretaro, Mexico); Rafael Rodriguez (Universidad Autonoma de Queretaro, Mexico); Jose Gutierrez-Villalobos (Autonomous University of Queretaro, Mexico)
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MS: Multimedia Systems
Friday, September 14, 15:00 –16:20

Room: Amsterdam 3+4
Chair: John J. Soraghan (University of Strathclyde, Glasgow, Scotland)

15:00 RoboKinect - A low-cost mobile vision system for 2.5D object detection 276
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15:20 Real-time Obstacle Detection Based On Stereo Vision For Automotive Applications 281
Zhen Zhang (University of Bristol, United Kingdom); Yifei Wang (University of Bristol, United Kingdom); Jason Brand (FAE, United Kingdom); Naim Dahnoun (University of Bristol, United Kingdom)
15:40 **Music Sequencer with Wireless Control Panel Made of LEDs**
Antoine Thomet (INSA Rennes, France); Kevin Nadaud (INSA, France); Jonathan Rault (INSA, France); Fabienne Nouvel (INSA, France); Christophe Lemoine (IETR, France)

16:00 **Networked BeagleBoards for Wireless Music Applications**
Leonardo Gabrielli (Università Politecnica delle Marche, Italy); Stefano Squartini (Università Politecnica delle Marche, Italy); Emanuele Principi (Università Politecnica delle Marche & A3Lab, Italy); Francesco Piazza (Università Politecnica delle Marche, Italy)

### Refreshments
**Friday, September 14, 16:20 –16:50**
Room: Erasmus

### Prize Giving and Closing
**Friday, September 14, 16:50 –17:00**
Room: Amsterdam 3+4
Chair: Djordje Marinkovic (Texas Instruments)