



Volume 14, Issue 1
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CECS eNEWS



Center for Embedded and Cyber-physical Systems, University of California, Irvine

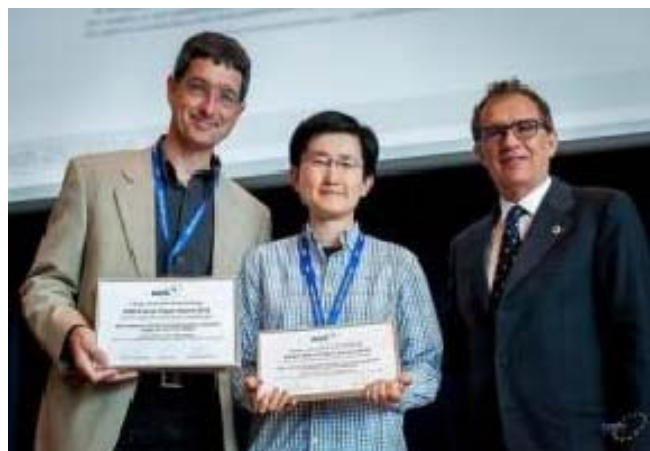
CECS at DATE 2014

Highlights

- DATE 2014
- Heydari Awards
- UROP Awards
- Design Review
- Visitor Profile:
Jana Krimmling



The 2014 Design, Automation & Test in Europe conference was held in beautiful Dresden, Germany, from Monday, March 24th through Friday, March 28th. This year's conference and exhibition attracted more than 1450 participants from all over the world and featured a full program of keynotes, panels, tutorials and technical presentations .



Rainer Dömer Receives a Best Paper Award at DATE 2014

Professor Rainer Doemer's paper entitled "May-Happen-in-Parallel Analysis based on Segment Graphs for Safe ESL Models" won a Best Paper Award at the 2014 Design, Automation and Test in Europe (DATE) conference . Prof. Dömer's pa-

per was selected out of a record number of over 1000 submissions. DATE is the top conference for embedded system design – more information can be found at this link: <http://www.date-conference.com>

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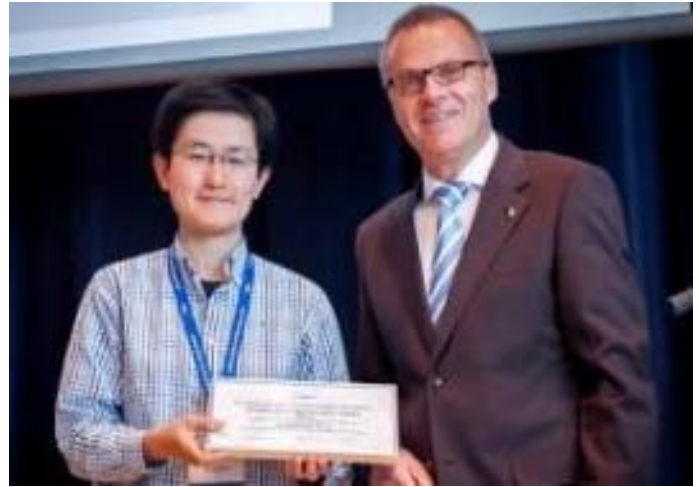
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DATE and Awards

DATE 2014 (continued from page 1)...

EDAA Outstanding Dissertation Award for Dr. Weiwei Chen

CECS alumna Weiwei Chen received the Outstanding Dissertation Award 2013 in the category of “New Directions in Embedded System Design and Embedded Software” from the European Design and Automation Association (EDAA) at the Design, Automation and Test in Europe (DATE) conference 2014. Dr. Chen received her Ph.D. degree from UC Irvine in 2013 while working at CECS under the guidance of Prof. Rainer Doemer on the topic of “Out-of-Order Parallel Simulation for Electronic System-Level Design”. Dr. Chen is currently working at Qualcomm Research Silicon Valley as a Senior Engineer. Her research focused on parallel computing, model specification, analysis, and simulation; compiler technologies; and the broad area of embedded system design and methodologies.



Heydari Receives Distinguished Educator and Distinguished Lecturer Awards

Payam Heydari: IEEE Distinguished Educator Award 2014 & IEEE Solid-State Circuits Society Distinguished Lecturer

The Orange County Engineering Council (OCEC) presented the 2014 Distinguished Engineering Educator Award to Professor Payam Heydari for his academic excellence, at the National Engineers Week award banquet at the Crown Plaza Hotel in Costa Mesa, on February 22, 2014. OCEC was established in 1962 with the mission of enhancing the public image of engineers and scientists and promoting the interaction of professional societies and engineering/scientific corporations and universities in Orange County, California.

Professor Heydari was also named a IEEE Distinguished Lecturer by the Solid-State Circuits Society 2014-2015. With over 9,000 members around the world, the IEEE Solid-State Circuits Society focuses on fabricated integrated circuit designs-- in contrast to simulated circuits and analyzed models --for all applications using relevant materials and interconnections.



Professor Heydari directs the Nanoscale Communication IC lab at UC Irvine, which conducts research in the areas of RF design for wideband wireless transceivers, high speed analog design for broadband wireline transceivers, and noise analysis and optimization in mixed analog/digital systems-on-chip.

UROP Awards

CECS Undergrads Earn UROP Awards

Professors Fadi Kurdahi and Rainer Dömer's undergraduate researchers were chosen as this year's recipients for the Undergraduate Research Opportunities Program (UROP) awards. UROP Grants and Fellowships Program provides funding for continuing UCI undergraduates from all disciplines who are conducting research projects or creative activities under the guidance of UCI faculty members.



These undergraduate researchers will present their research results and findings at the UCI Undergraduate Research Symposium scheduled for Saturday, May 17, 2014. This year's theme is

"Undergraduate Research: Growth through Innovation". In addition, they are invited to submit a research paper for possible publication in *The UCI Undergraduate Research Journal*. Papers will be accepted during the Spring Quarter 2014. The students will also have the opportunity to showcase their projects at the 2014 Winter Design Review.

UROP Fellows: Chantal Fry, Anastasia Shuba, Emily Petrossian

Project Title: "Android TV Remote"

Faculty Mentor: Rainer Dömer

UROP Fellows: Patrick Do, Jonathan Lin, Chynna Velasco, Tanuja Undevalli

Project Title: "Visually Induced Motion Sickness (VIMS) Reduction for Virtual Reality (VR) Systems"

Faculty Mentor: Fadi Kurdahi

UROP Fellows: Faraz Milani, Kelvin Liang, Young M. Kim, Matthew M. Cai

Project Title: "PiBrush"

Faculty Mentor: Fadi Kurdahi

UROP Fellows: Daniel So, Steven Chau, Guojun Zhang, Steven Rutherford

Project Title: "Compact Interactive Display System (C.I.D.S)"

Faculty Mentor: Fadi Kurdahi

UROP Fellows: Hanchel Cheng, Daniel Rojas, Christopher Fong, Dan Ho

Project Title: "Tremor Stabilization for Parkinson's Disease Patients"

Faculty Mentor: Fadi Kurdahi

Design Review

2014 Winter Design Review Projects

Staff



CECS faculty Mohammad Al Faruque, Rainer Dömer, Ahmed Eltawil, Ian Harris, Fadi Kurdahi and their undergraduate students proudly presented the senior design projects at the 2014 Samueli School of Engineering Winter Design Review on Friday, March 14, 2014 at UCI Irvine Student Center, Pacific Ballroom.

Project Posters

Wireless Lock
Lyheng Lov, Chou Gech Lov, Tzu-Fei Yu, Andy Chang
Professor Rainer Dömer
Department of Electrical Engineering and Computer Science
The Henry Samueli School of Engineering, University of California, Irvine

Goal
The goal is to design and build a system that makes traditional deadbolt locks intelligent, networked and wireless. The system allows the lockers to be locked/unlocked through their doors with mobile devices through internet, and makes opening locks with convenient access.

Innovation / Approach
1) Build a web server which uses for other wireless technology to control and synchronize the deadbolt lockers through internet.
2) User accounts allow users to change digital key with levels of authority that enable different operations.
3) When the deadbolt is open, system can activate for locking (pushing) and the system will send it with notification to user's mobile device through wireless.

System Configuration

Parts / Budget

Component	Cost
Microcontroller kit	\$75
Wireless adapter	\$30
Camera module	\$40
Sensor	\$3
Electronic Components	\$10
Wires	\$10
Solder	\$10
Other Parts/Consumables	\$10
Total Estimated Cost: USD	\$188

Project Title: Wireless Lock (Lyheng Lov, Jia-Yu Chang, Chou Gech Lov, Tzu-Fei Yu; CECS Advisor: Rainer Dömer)

Introduction
UC EYEspy is an UAV system that is designed to autonomously land by using ultrasonic sensors. We will be able to control an aerial vehicle's throttle for safe and smooth landing on various terrains. Given the expensive nature of aerial vehicles and sensitive payloads, we develop methods to protect our assets from dangerous landing. Our auto-landing algorithm will optimize the motor's throttle to counteract fast deceleration speed while minimizing further consumption, for a safe and secure landing.

Team Members

Member	Team Title
Hiten Ram Bhakta	Project Lead
Michael Picardal	Team Member
Richard Fong	Team Member
Steven Wong	Team Member

Goal & Approach
Design a UAV system that is designed to autonomously land on various terrains for all weather conditions. The system will be able to control an aerial vehicle's throttle for safe and smooth landing on various terrains. Given the expensive nature of aerial vehicles and sensitive payloads, we develop methods to protect our assets from dangerous landing. Our auto-landing algorithm will optimize the motor's throttle to counteract fast deceleration speed while minimizing further consumption, for a safe and secure landing.

Parts & Cost

Power Supply
7.4 V Lithium Polymer Battery with a TV regulator and compensating capacitors will be used to supply steady power to the landing sub-systems. QuadCopter will have its own standalone battery power.

Milestones & Current Status

Milestone	Current Status
UAV System Development	Completed
UAV System Integration	In Progress
UAV System Testing	Completed
UAV System Deployment	Completed

Project Title: UC EYEspy (Undergraduates: Hiten Ram Bhakta, Michael Picardal, Richard Fong, Steven Wong; CECS Advisor: Ian Harris)

Design Review cont.

Tremor Stabilization in Parkinson's Disease Patients
Department of Electrical Engineering and Computer Science
The Henry Samueli School of Engineering
University of California, Irvine

Goal Statement
We aim to design a prototype of a device that will stabilize movement for people with Parkinson's disease. The device will be a small, portable, and easy-to-use device.

Motivation
Parkinson's disease has been diagnosed in over 1 million people worldwide. The most significant symptom of Parkinson's disease is involuntary hand tremor which affects the daily life of those with the disease.

Stabilization System
The stabilization system consists of a sensor that will detect the tremor and a controller that will stabilize the movement. The sensor will be a small, portable, and easy-to-use device.

Measurements
A Parkinson's disease was simulated and measured with our device. The measurements showed a decrease in the tremor amplitude.

Team Members
Fadi Kurdahi, Professor (Advisor)
Hanchel Cheng, Undergraduate
Christopher Fong, Undergraduate
Dan Ho, Undergraduate
Daniel Rojas, Undergraduate

Results
The device successfully stabilized the tremor. The results showed a decrease in the tremor amplitude. The device was able to stabilize the tremor for a period of time.

Schedule
A Gantt chart showing the project schedule from the start to the end of the project.

Project Title: Tremor Stabilization in Parkinson's Disease Patients (Undergraduates: Hanchel Cheng, Christopher Fong, Dan Ho, Daniel Rojas; CECS Advisor: Fadi Kurdahi)

Self-Organizing Parking Space Management for Autonomous Vehicle
Donjon Baclig, Michael Blank, Evan Seigler, Yoheita Yoshimura, and Dr. Mohammad A. Al Faruque
Department of Electrical Engineering and Computer Science
Henry Samueli School of Engineering, University of California, Irvine

Project Objectives
1. To create a parking space management system that can automatically detect and allocate parking spaces and manage the parking process.

Team Members
Donjon Baclig, Michael Blank, Evan Seigler, Yoheita Yoshimura, and Dr. Mohammad A. Al Faruque

Schedule
A Gantt chart showing the project schedule from the start to the end of the project.

Project Concept
The project concept is to create a parking space management system that can automatically detect and allocate parking spaces and manage the parking process.

Introduction
What are the advantages of smart parking systems?
1. Efficient use of parking spaces
2. Reduced traffic congestion
3. Improved parking experience

Final Prototype
A photograph of the autonomous vehicle equipped with the parking space management system.

Project Title: Self Organizing Parking Space Management for Autonomous Vehicle (Undergraduates: Donjon Baclig, Michael Blank, Evan Seigler, Yoheita Yoshimura; CECS Advisor: Mohammad Al Faruque)

Naturally MAPPED MOVEMENT for VR Systems
Patrick Do, Jonathan Lin, Chynna Velasco, Tanuja Undevalli, and Dr. Fadi Kurdahi

Goal Statement
The goal of this project is to create a system that can map natural movement to VR systems.

Implementation Approach
The implementation approach involves using motion capture technology to record natural movement and then mapping it to the VR system.

Timeline SCHEDULE
A Gantt chart showing the project schedule from the start to the end of the project.

Background Introduction
Virtual reality (VR) systems have become increasingly popular in recent years. However, the current VR systems often require users to perform unnatural movements.

Project Details
The project details include the hardware and software components of the system.

Hardware Details
The hardware details include the motion capture system, VR headset, and computer.

Software Details
The software details include the motion capture software, VR application, and mapping software.

Project Title: Naturally Mapped Movement for VR Systems (Undergraduates: Patrick Do, Jonathan Lin, Chynna Velasco, Tanuja Undevalli; CECS Advisor: Fadi Kurdahi, Marck Bachman)

Knobby: An Innovative Smart Lock System
Roanne Apides (EE), Alison Etter (EE), Rashaad Hussein (CPE), Meelad Vahdat (CPE)
Faculty Advisor: Fadi J. Kurdahi, EECS

Goal Statement
We designed a wireless, electronic lock system that can be controlled through an Android application.

Unlocking Process
The user will decide if the user is allowed access and will send a signal back to the lock, which will unlock the door.

Schedule and Milestones
A Gantt chart showing the project schedule from the start to the end of the project.

About the Team: The DigiDestined
Roanne Apides (EE), Alison Etter (EE), Rashaad Hussein (CPE), Meelad Vahdat (CPE)

Introduction
The lock will store usage information in a log that can be accessed through an Android application.

Components
Raspberry Pi computer, Electronic door lock, Datalogging sensor switch with heat and SR USB (3.1 - 3.3 A) power bank

Results and Measurements from Pi
A table showing input voltage and current measurements.

Input Voltage (V)	Input Current (mA)
1.5	0.23
1.8	0.70
2.0	1.40
2.2	2.26
2.4	3.13
2.6	3.89
2.8	4.87
3.0	5.55

Software
Android App, Python program on Raspberry Pi

Project Title: Knobby: An Innovative Smart Lock System (Undergraduates: Roanne Apides, Meelad Vahdat, Alison Etter, Rashaad Hussein; CECS Advisor: Fadi Kurdahi)

Design Review cont. & Visitor

Android Television Remote
Chantal Fry, Emily Petrossian, Anastasia Shuba
Professor Rainer Dömer
Department of Electrical, Engineering, and Computer Science

Goal Statement
The purpose of this project is to develop a universal remote control system that allows consumers to use an Android device to control their television set through a visually appealing and user-friendly interface.

Introduction
Often the designs of remote controls used to control TV sets are overly complicated. This makes using remote controls not very intuitive as well as confusing. Our Android TV remote aims to improve on this by adding a small decorative hardware piece that will convert signals from an Android device to standard infrared signals that most TV sets can respond to.

Approach
First the Arduino was programmed to catch the infrared signals and commands from a TV remote. Then a simple user interface was created that connects to Bluetooth and contains common commands such as volume and power. Combining the interface and the database, the Arduino was programmed to transmit any commands from the Android application to an IR LED in order to pulse the correct command.

Measurements
Range of Infrared for Television Remotes for Android
Range of Bluetooth for Television Remotes for Android

Results
Figure 1. IR LED Range
Figure 2. Bluetooth Range
Figure 3. A completed, functional IR circuit.
Figure 4. UI for phone version of app.

Milestones
Week 1: Creation of basic Android application and user interface. Obtain all parts and begin design of IR hardware.
Week 2: Completion of IR circuit and beginning of IR code database.
Week 3: Completion of IR database and completion of Android application.
Week 4: Testing of all devices (Bluetooth, Arduino, television, user interface).
Week 5: All debugging and design finalized.

Team Members
Chantal Fry - Computer Engineering
Team leader, microcontroller programming
Contact: chfry@ujs.edu
Anastasia Shuba - Computer Engineering
Android application developer
Contact: ashuba@ujs.edu
Emily Petrossian - Electrical Engineering
Board design and layout, soldering
Contact: epetross@ujs.edu

Project Title: Android Television Remote (Undergraduates: Chantal Fry, Anastasia Shuba, Emily Petrossia; CECS Advisor: Rainer Dömer)

FPGA-Based Software Defined Radio
Edwin Cordon (ECE), Jessica Ju (ECE), Beatrix Luk (EE), Andrew Trentacoste (EE)
Professor Ahmed Eltawil
Department of Electrical Engineering, and Computer Science

Goal Statement
To develop a transmit and receive system using software defined radio that will synchronously jump frequencies rapidly while encoding the next frequency point within the message. Useful for secure communication for armed forces or emergency responders.

Background
• FM (Frequency Modulation) varies message in frequency
• GNU Radio program to build basic architecture
• The design updates the firmware on the FPGA on the USRP board.
• Send and Transmit through antennas
Approach
• Frequency hopping at faster speeds.
• Detection through sending a beacon in an invisible frequency
• Filter beacon to determine next frequency point to synch with the transmitter
• More secure Communication

Results
[Images of hardware and software interfaces]

Team Members
Edwin Cordon - CoE - Team Leader
Jessica Ju - CoE - Python
Beatrix Luk - EE - Hardware
Drew Trentacoste - EE - Testing
Advisor: Professor Ahmed Eltawil

Parts
• Ettus - USRP board (2)
• Ettus - Basic Rx Daughterboard (2)
• Ettus - Basic Tx Daughterboard (2)
• FM / AM Antenna (2)
• Coaxial loopback cable (1)
• External Radio (2)

Schedule
Week Activity
Week 1: Install USRP setup with pc
Week 2: Design FM demodulator in GNU
Week 3: Interface with receiver on USRP with GNU
Week 4: Test FM signal integrity
Week 5: Continue testing and debug
Week 6: Design frequency-hopping spread spectrum
Week 7: Test and debug frequency-hopping
Week 8: Create a GUI for end product to be more user friendly

Project Title: FPGA-Based Software Defined Radio (Undergraduates: Edwin Cordon, Beatrix Luk, Jessica Ju, Andrew Trentacoste; CECS Advisor: Ahmed Eltawil)

Visitor Profile: Jana Krimmling

-Staff



Jana Krimmling joins Prof. Tony Givargis's Cyber Physical Systems Design Group (CPS) as a visiting researcher for four months this Winter Quarter.

Jana has worked in Sensor Networks Group at the System Design Department of the IHP – Leibniz Institute for High Performance Microelectronics in Frankfurt (Oder), Germany. There, Jana works towards her doctoral dissertation in the field of embedded systems on the design and implementation of secure wireless sensor networks hardware, middleware and applications and their integration into industrial environments. As part of her work she received the Young-Engineer-Award of the SPS/IPC/DRIVES Conference in 2010 for her work on reliable wireless communication in industrial environments.

Her current research, supported by the European projects SMARTIE and E-BALANCE, addresses the design of distributed algorithms for the detection of anomalies and intrusions in cyber-physical systems such as smart cities and industrial automation systems.

Publications

The following papers were published by CECS affiliates between Jan 2014 to March 2014 (and unreported papers from previous eNews).

Author, Title, Publication

Conference Proceedings

Weiwei Chen, Xu Han, Rainer Dömer, “**May-Happen-in-Paralle Analysis based on Segment Graphs for Safe ESL Models,**” IEEE/ACM Design Automation and Test in Europe (DATE), Dresden, Germany, March 24-28, 2014, DATE 2014: 1-6 (Best paper Award)

Abbas Rahimi, Luca Benini, Rajesh K. Gupta, “**Temporal Memoization for Energy-efficient Timing Error Recovery in GPGPUs,**” IEEE/ACM Design Automation and Test in Europe (DATE), Dresden, Germany, March 24-28, 2014, DATE 2014: 1-6

Haeseung Lee, Mohammad Abdullah Al Faruque, “**GPU-EvR: Run-time Event Based Real-time Scheduling Framework on GPGPU Platform,**” IEEE/ACM Design Automation and Test in Europe (DATE), Dresden, Germany, March 24-28, 2014, DATE 2014: 1-6

Francesco Paterna, Joe Zanolli, Tajana Simunic Rosing, “**Ambient Variation-Tolerant and Inter Components Aware Thermal Management for Mobil System on Chips,**” IEEE/ACM Design Automation and Test in Europe (DATE), Dresden, Germany, March 24-28, 2014, DATE 2014: 1-6

Baris Aksanli, Tajana Rosing, “**Providing Regulation Services and Managing Data Center Peak Power Budgets,**” IEEE/ACM Design Automation and Test in Europe (DATE), Dresden, Germany, March 24-28, 2014, DATE 2014: 1-4

Pietro Mercati, Andrea Bartolini, Francesco Paterna, Tajana Simunic Rosing, Luca Benini, “**A Linux-Governor Based Dynamic Reliability Manager for Android Mobile Devices,**” IEEE/ACM Design Automation and Test in Europe (DATE), Dresden, Germany, March 24-28, 2014, DATE 2014: 1-4

Arquimedes Canedo, Mohammad Abdullah Al Faruque, Jan H. Richter, “**Multi-Disciplinary Integrated Design Automation Tool for Automative Cyber-Physical Systems,**” IEEE/ACM Design Automation and Test in Europe (DATE), Dresden, Germany, March 24-28, 2014, DATE 2014: 1-2

Shirish Bahirat, Sudeep Pasricha, “**HELIX: Design and Synthesis of Hybrid Nanophotonic Application-Specific Network-On-Chip Architectures,**” The International Symposium on Quality Electronic Design (ISQED), Santa Clara, CA, USA, March 16-18, 2014, ISQED 2014: 91-98

Tejasi Pimpalkhute, Sudeep Pasricha, “**An Application-Aware Heterogeneous Prioritization Framework for NoC Based Chip Multiprocessor,**” The International Symposium on Quality Electronic Design (ISQED), Santa Clara, CA, USA, March 16-18, 2014, ISQED 2014: 76-83

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PUBLICATIONS

The following papers were published by CECS affiliates between Jan 2014 to March 2014 (and unreported papers from previous eNews) - continued from page 7...

Ting-Chou Chien, Chengjia Huo, Pai H. Chou, "**A Modular Backend Computing System for Continuous Civil Structural Health Monitoring**," SPIE Nondestructive Characterization for Composite Materials Aerospace Engineering, Civil Infrastructure, and Homeland Security VIII, San Diego, CA, March 10-13, 2014

Quoc-Viet Dang, Daniel Gajski, "**Bringing In-Class Online – A Hybrid Solution**," The Interdisciplinary Engineering Design Education Conference (IEDEC), Santa Clara, CA, March 3, 2014

Mohammad Abdullah Al Faruque, "**RAMP: Impact of Rule Based Aggregator Business Model for Residential Microgrid of Prosumers Including Distributed Energy Resources**," IEEE PES Conference on Innovative Smart Grid Technologies (ISGT), Washington DC, USA, February 19-22, 2014

Mohammad Abdullah Al Faruque, Fereidoun Ahourai, "**GridMat: Matlab Toolbox for GridLab-D to Analyze Grid Impact and Validate Residential Microgrid Level Energy Management Algorithms**," IEEE PES Conference on Innovative Smart Grid Technologies (ISGT), Washington DC, USA, February 19-22, 2014

Kristofor D. Carlson, Michael Beyeler, Nikil Dutt, Jeffrey L. Krichmar, "**GPGPU Accelerated Simulation and Parameter Tuning for Neuromorphic Applications**," The 19th Asia and South Pacific Design Automation Conference (ASP-DAC), Singapore, January 20-23, 2014, ASP-DAC 2014: 570-577

Mohammad Abdullah Al Faruque, Fereidoun Ahourai, "**A Model-based Design of Cyber-Physical Energy Systems**," The 19th Asia and South Pacific Design Automation Conference (ASP-DAC), Singapore, January 20-23, 2014, ASP-DAC 2014: 97-104

Santanu Sarma, Nikil Dutt, "**Minimal Sparse Observability of Complex Networks: Application to MPSoC Sensor Placement and Run-time Thermal Estimation & Tracking**," Design, Automation & Test in Europe Conference & Exhibition (DATE), Dresden, Germany, March 24-28, 2014, DATE 2014: 1-6

Ch. Kerschbaumer, E. Hennigan, P. Larsen, S. Brunthaler, and M. Franz; "**Information Flow Tracking meets Just-In-Time Compilation**," the 9th International Conference on High-Performance and Embedded Architectures and Compilers (HiPEAC), Vienna, Austria, January 20-22, 2014

Nishit Ashok Kapadia, Sudeep Pasricha, "**Process Variation Aware Synthesis of Application-Specific MPSoCs to Maximize Yield**," The 27th International Conference on VLSI Design (VLSI Design), Mumbai, India, January 5-9, 2014, VLSI Design 2014: 270-275

Tejasi Pimpalkhute, Sudeep Pasricha, "**NoC Scheduling for Improved Application-Aware and Memory-Aware Transfers in Multi-core Systems**," The 27th International Conference on VLSI Design (VLSI Design), Mumbai, India, January 5-9, 2014, VLSI Design 2014: 234-239

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PUBLICATIONS

The following papers were published by CECS affiliates between Jan 2014 to March 2014 (and unreported papers from previous eNews) - continued from page 8...

Sung-Soo Lim, Eun-Jin Im, Nikil Dutt, Kyung-Woo Lee, Insik Shin, Chang-Gun Lee, Insup Lee, “**A Reliable, Safe and Secure Run-Time Platform for Cyber Physical Systems,**” IEEE 6th International Conference on Service-Oriented Computing and Applications (SOCA), Koloa, HI, December 16-18, 2013, SOCA 2013: 268-274

Ahmed Nassar, Fadi J. Kurdahi, “**Architectural Support for Runtime Verification on ccNUMA multiprocessors,**” The 8th International Design and Test Symposium (IDT), Marrakesh, Morocco, December 16-18, 2013, IDT 2013: 1-6

Mahdi Abbaspour Tehrani, Aditi Majumder, Meenakshisundaram Gopi, “**Undistorting Foreground Objects in Wide Angle Image,**” IEEE International Symposium on Multimedia, Anaheim, CA, USA, December 9-11, 2013, ISM 2013: 46-52

Yong Hun Eom, Brian Demsky, “**Sinfer: Inferring Information Flow lattices for Checking Self-stabilization,**” IEEE 24th International Symposium on Software Reliability Engineering, ISSRE 2013, Pasadena, CA, November 4-7, 2013

Joel Coburn, Trevor Bunker, Meir Schwarz, Rajesh Gupta, Steven Swanson, “**From ARIES to MARS: Transaction Support for Next-Generation, Solid-State Drives,**” ACM SIGOPS 24th Symposium on Operating Systems Principles, Farmington, PA, November 3-6, 2013, SOSP 2013: 197-212

Author, Title, Publication

Journal

Zheng Wang, Pei-Yuan Chiang, Peyman Nazari, Chun-Cheng Wang, Zhiming Chen, Payam Heydari, “**A CMOS 210-GHz fundamental Transceiver with OOK Modulation,**” IEEE Journal of Solid-State Circuits 49(3): 564-580, March, 2014

Peyam Nazari, Byung-Kwan Chun, Fred Tzeng, Payam Heydari, “**Polar Quantizer for Wireless Receivers: Theory, Analysis and CMOS Implementation,**” IEEE Transactions on Circuits and Systems 61-1(3): 877-887, March, 2014

Alba Melo, Jean-Luc Gaudiot, Luiz DeRose, Kunle Olukotun, Albert Y. Zomaya, “**Guest Editorial,**” International Journal of Parallel Programming (IJPP) 42(1): 1-3, February 2014

Per Larsen, Stefan Brunthaler, Michael Franz, “**Security through Diversity Are We There Yet?**” IEEE Security and Privacy 12(2): 28-35, March-April, 2014

Luis Angel D. Bathen, Nikil D. Dutt, “**Embedded RAIDs-on-chip for Bus-based Chip-multiprocessors,**” ACM Transactions on Embedded Computer Systems 13(4): 83, February, 2014

Muhammed S. Khairy, Amin Khajeh, Ahmed M. Eltawil, Fadi J. Kurdahi, “**Equi-Noise: A Statistical Model That Combines Embedded Memory Failures and Channel Noise,**” IEEE Transactions on Circuits and Systems 61-1(2): 407-419, February 2014

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PUBLICATIONS

The following papers were published by CECS affiliates between Jan 2014 to March 2014 (and unreported papers from previous eNews) - continued from page 9...

Sandeep K. Shukla, “**Editorial: Embedded Everywhere for Everyone,**” ACM Transactions in Embedded Computing Systems (TECS) 13(4): 74, February, 2014

Kyoung-Soo We, Chang-Gun Lee, Kyongsu Yi, Kwei-Jay Lin, Yun Sang Lee, “**HRT-PLRU: A New Paging Scheme for Executing Hard Real-Time Programson NAND Flash Memory,**” IEEE Transactions on Computers (TC) 63(4): 927-940, January 2014

Mishari Al Mishari, Paolo Gasti, Naveen Nathan, Gene Tsudik, “**Optimizing Bi-Directional Low-Latency Communication in Named Data Networking,**” Computer Communication Review 44(1): 13-19, January, 2014

Elsayed Ahmed, Ahmed M. Eltawil, “**On Phase Noise Suppression in Full-Duplex Systems,**” The Computing Research Repository (CoRR) abs/1401.6437, January 2014

Aras Pirbadian, Muhammed S. Khairy, Ahmed M. Eltawil, Fadi J. Kurdahi, “**State Dependent Statistical Timing Model for Voltage Scaled Circuits,**” The Computing Research Repository (CoRR) abs/1403.2785, January 2014

Ahmed Ben Achballah, Slim Ben Saoud, “**The Design of a Network-On-Chip Architecture Based On An Avionic Protocol,**” The Computing Research Repository (CoRR) abs/1401.4891, January, 2014

Chen Huang, Frank Vahid, Tony Givargis, “**Automatic Synthesis of Physical System Differential Equation Models to a Custom Network of General Processing Elements on FPGAs,**” ACM Transactions on Embedded Computing Systems (TECS) 12(2): 23, December 2013

Hessam Kooti, Eli Bozorgzadeh, “**Transition-aware Task Scheduling and Configuration Selection in Reconfigurable Embedded Systems,**” SIGBED Review 10(4): 37-40, December 2013

Jeff Krichmar, “**The Cognitive Anteater Robotics Laboratory (CARL) at the University of California, Irvine,**” IEEE Intelligent Informatics Bulletin 14(1): 1-4, December 2013

Ahmed Ben Achballah, Slim Ben Othman, Slim Ben Saoud, “**Design of Field Programmable Gate Array (FPGA) Based Emulator for Motor Control Applications,**” The Computing Research Repository (CoRR) abs/1312.5704, December 2013

Ahmed Ben Achballah, Slim Ben Saoud, “**A Survey of Network-On-Chip Tools,**” The Computing Research Repository (CoRR) abs/1312.2976, December 2013

Abbas Rahimi, Luca Benini, Rajesh K. Gupta, “**Spatial Memoization: Concurrent Instruction Re-use to Correct Timing Erros in SIMD Architectures,**” IEEE Transactions on Circuits and Systems 60-II(12): 847-851, December 2013

Raid Ayoub, Rajib Nath, Tajana Simunic Rosing, “**CoMETC: Coordinated Management of Energy/Thermal/Cooling in Servers,**” ACM Transactions on Design Automation of Electronic Systems (TODAES) 19(1): 1, December 2013

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CECS—promoting creativity and pursuing discovery!

Center for Embedded and Cyber-Physical Systems, University of California, Irvine

CECS Mission Statement:

To conduct leading-edge interdisciplinary research in embedded systems emphasizing automotive, communications, and medical applications, and to promote technology and knowledge transfer for the benefit of the individual and society.

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