



IEEE Council on Electronic Design Automation

IEEE Brain Initiative

As massive global efforts across government, academia, and industry deepen their focus on developing neurotechnology, and as these technologies become mature enough to be considered for commercialization and standardization, IEEE's new Brain Initiative has arrived at a crucial time to complement a vast number of endeavors. Stemming from the IEEE Future Directions Committee, the initiative will facilitate interaction within IEEE and beyond, enhancing the rapidly expanding dialogue centered around neurotechnology.

Paul Sajda (Columbia University) is the chair of the Future Directions Committee for the IEEE Brain Initiative. An IEEE Fellow, Sajda has served as editor-in-chief of *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, and he has experience in industry, startups, and academia. His research interests include multimodal neuroimaging of human decision-making, brain-machine interfaces, and computational psychiatry.

The mission of the IEEE Brain Initiative is to facilitate cross-disciplinary collaboration and coordination to advance research, standardization, and development of technologies in neuroscience so as to help improve the human condition. "The hope is that people with ideas, ways in which they think that they might synergize between either other societies or councils or outside the IEEE, will get involved in this," Sajda explains, "because it is truly a multi-disciplinary venture where we're not just spanning within IEEE, but we're looking at life sciences, brain, things like that. It's a challenge, but it's super exciting because of the possibility of the interfaces."

The First IEEE Brain Initiative Workshop was held at Columbia University on 14 December 2015. The workshop was intended to kick off a discussion on the definition, scope, and potential structure of the IEEE Brain effort. Steve Diamond, vice chair of the IEEE Future Directions Committee, gave the opening remarks and explained to the attendees the importance of IEEE's role in nurturing the development of technologies and brain

research. Chair Paul Sajda and Vice Chair Jose Carmena facilitated the discussion throughout the day.

The workshop consisted of a blend of keynote presentations from Rafael Yuste (Columbia University) and Jan Rabaey (University of California, Berkeley), stimulating technical exchanges, and informative presentations from 11 IEEE organizational units discussing their efforts on brain research. The workshop ended with a lively brainstorming session in which attendees identified topic areas that should be addressed, communities and constituencies that should be engaged, and ways to collaborate within and outside of IEEE.

For more information, please go to the IEEE Brain Initiative website at <http://brain.ieee.org>.

Embedded Systems Week 2016

Embedded Systems Week will be held on 2-7 October 2016 in Pittsburgh, Pennsylvania. ESWeek presents a wide range of topics unveiling the state of the art in embedded systems design and hardware-software architectures. ESWeek brings together three leading conferences:

- CASES (International Conference on Compilers, Architecture, and Synthesis for Embedded Systems);
- CODES+ISSS (International Conference on Hardware/Software Codesign and System Synthesis); and
- EMSOFT (International Conference on Embedded Software).

This year, ESWeek also includes a special Internet of Things (IoT) Day, several symposia, and exciting workshops and tutorials.

Registered attendees are entitled to attend sessions of all three conferences, as well as the IoT Day. Symposia, workshops, and tutorials require separate registration.

CASES 2016

CASES is a forum in which researchers, developers, and practitioners exchange information on the latest advances in compilers and architectures for high-performance embedded systems. Core areas of technical interest include embedded systems architectures, compilers, and software; memory architectures; architectures targeting power, reliability, and security; and emerging application domains. Papers that address architectural synthesis and compiler techniques for heterogeneous and accelerator-rich architectures are especially encouraged.

CODES+ISSS 2016

CODES+ISSS is the premier event on system-level design, modeling, analysis, and implementation of modern embedded and cyber-physical systems, from system-level specification and optimization to system synthesis of multiprocessor hardware-software implementations. This forum brings together academic research and industrial practice for all aspects related to system-level and hardware-software codesign. High-quality original papers will be accepted for oral presentations followed by interactive poster sessions.

EMSOFT 2016

EMSOFT unites researchers and developers from academia, industry, and government to advance the science, engineering, and technology of embedded-software development. Since 2001, EMSOFT has been the premier venue for cutting-edge research in the design and analysis of software that interacts with physical processes. EMSOFT has a long-standing tradition of delivering results for cyber-physical systems, which comprise computation, networking, and physical dynamics.

Internet of Things: A Holistic Perspective

Recent advances have led to a vision of a future Internet that connects diverse physical entities, ranging from commonplace household appliances to smart city infrastructures. The IoT brings challenges in several research areas, includ-

ing cyber-physical systems, networked sensing, wireless networking, and cloud computing. The IoT Day is designed as a meeting point for researchers to exchange examples of relevant domain challenges and identify new and exciting interdisciplinary research directions through a combination of contributed and invited papers, talks, and panels.

For more information, please visit <http://www.esweek.org>.

Papers in IEEE Embedded Systems Letters

The top-five accessed articles from *IEEE Embedded Systems Letters* in January 2016 were as follows:

- “[Motion Noise Cancellation in Heartbeat Sensing Using Accelerometer and Adaptive Filter](#),” by S. Ardalan, S. Moghadami, and S. Jaafari
- “[Wearable Camera- and Accelerometer-Based Fall Detection on Portable Devices](#),” by K. Ozcan and S. Velipasalar
- “[A Formal Verification Methodology for FPGA-Based Stepper Motor Control](#),” by S. Jabeen et al.
- “[WeNA: Deterministic Run-Time Task Mapping for Performance Improvement in Many-Core Embedded Systems](#),” by L.-T. Huang et al.
- “[Security-Aware Modeling and Efficient Mapping for CAN-Based Real-Time Distributed Automotive Systems](#),” by C.-W. Lin, Q. Zhu, and A. Sangiovanni-Vincentelli

Upcoming Conferences (Yao-Wen Chang, ywchang@ntu.edu.tw)

DAC	Austin, Texas, 5-9 June 2016
SMACD	Lisbon, Portugal, 27-30 June 2016
ESWeek	Pittsburgh, Pennsylvania, 2-7 October 2016

Find us online at <http://ieeecedata.org>.



IEEE Embedded Systems Letters is open for submissions. Visit mc.manuscriptcentral.com/les-ieee.

IEEE Design & Test is open for submissions. Visit mc.manuscriptcentral.com/dandt and ieeecedata.org/publications/d-t/paper-submission.

IEEE COUNCIL ON ELECTRONIC DESIGN AUTOMATION

President: SHISHPAL RAWAT President-Elect: DAVID ATIENZA Past President: SANI NASSIF
Secretary: ELI BOZORGZADEH VP Conferences: YAO-WEN CHANG VP Finance: GI-JOON NAM
VP Publications: HELMUT GRAEB VP Publicity: JOSE AYALA VP Activities: PENG LI
Strategy Chair: DAVID ATIENZA Awards Chair: HIDETOSHI ONODERA

CEDA Currents is a publication of IEEE CEDA. Please send contributions to Jose L. Ayala (jayala@fdi.ucm.es).

© 2016 IEEE. All rights reserved.