May 2017

Currents

IEEE Council on Electronic Design Automation

Code Ocean is live: Upload Your Algorithms

Code Ocean is a cloud-based executable research platform that allows authors to share their algorithms in an effort to make the world's scientific code more open and reproducible. Uploading your algorithms and associated data files to the Code Ocean site is easy. Anyone can run an algorithm posted to Code Ocean, modify it, and test the modifications. The published algorithm that an author posts will remain unchanged.

Any author that has had an IEEE journal article published on IEEE *Xplore*® in the last five years can upload associated algorithms to Code Ocean by visiting https://codeocean.com/ieee/signup. Once the algorithm is uploaded to Code Ocean it will automatically be linked to the associated article in IEEE *Xplore*. Users in IEEE *Xplore* will be able to discover and access the link to run the algorithm in Code Ocean.

For more information, please check: https://www.ieee.org/documents/code_ocean_feb_2017.pdf

1st IEEE CEDA IoT Student Challenge sponsored by Texas Instruments

On March 27th, and during the conference DATE, it took place the first edition of the IoT Student challenge, co-sponsored by IEEE CEDA and Texas Instruments. During that exciting day, 20 teams had the opportunity to practice with TI's SimpleLink Technology. Each participant received a Launchpad and a Sensortag that allowed them to set up their own Wireless Sensor Network during the tutorial as well as later on at home. The new CC1350 dual-band technology allows cost-effective, ultra-low-power, 2.4-GHz and Sub-1 GHz IoT applications. The combination of easy mobile phone integration with long- range connectivity including a 32-bit ARM® Cortex®-M3 processor on a single chip, and the varied flow of data from 10 different types of sensors gave the students the opportunity to innovate in a broad range of personal or academic projects.

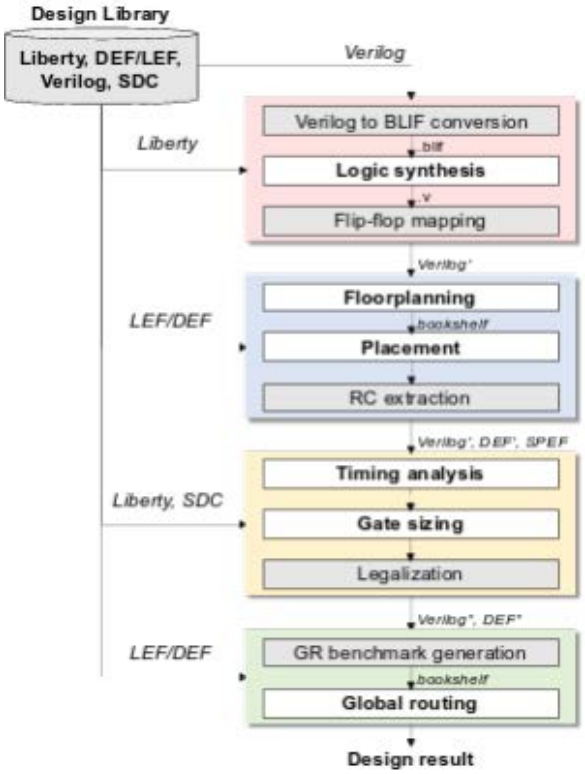
Peter Spevak (from TI) provided the training and conducted the challenge, while IEEE CEDA's President (Shishpal Rawat) and Dominique Poissonnier (from TI) awarded the four winners of the challenge during the DATE reception.

OpenDesign Flow Database

In recent years, there has been a slew of design automation contests and released benchmarks. ISPD place&route contests, DAC placement contests, timing analysis contests at TAU and CAD contests at ICCAD are good examples in the past, and more of new contests are planned in the upcoming conferences. Nevertheless, most contests focus only on the point tool problems and fail in addressing the design flow or co-optimization among design tools.

IEEE CEDA Design Automation Technical Committee (DATC) develops OpenDesign Flow Database to direct attentions to the overall design flow from logic design to physical synthesis. The goals are to provide 1) an academic reference design flow purely composed by past CAD contest results, 2) the database for design benchmarks and point tool libraries, and 3) standard design input/output formats to build a customized design flow by composing point tool libraries. The Figure illustrates the overview of OpenDesign Flow Database. It includes public academic binaries for logic synthesis, placement, timing analysis, gate sizing, and global routing, as well as additional translation scripts that enable data exchange between tools. The reference flow will be expanded to include more academic point tools in the near future. If you are interested in providing tools, please kindly contact us.

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



Papers in IEEE Embedded Systems Letters

The top-five accessed articles from *IEEE Embedded Systems Letters* in March 2017 were as follows:

- "A Compact Portable Microwave Life-Detection Device for Finding Survivors," by F. JalaliBidgoli et al.
- "Testing Autonomous Vehicle Software in the Virtual Prototyping Environment," by Baekgyu Kim et al.
- "Public Key Authentication and Key Agreement in IoT Devices With Minimal Airtime Consumption," by S. Sciancalepore et al.
- "Energy Efficient Outdoor Light Monitoring and Control Architecture Using Embedded System," by Z. Kaleem, T.M. Yoon, and C. Lee
- "Perspective Paper—Can AC Computing Be an Alternative for Wirelessly Powered IoT Devices?" by Tutu Wan et al.

Papers in IEEE Design and Test

The top-five accessed articles from *IEEE Design and Test* in March 2017 were as follows:

- "Computing in the Dark Silicon Era: Current Trends and Research Challenges," by Muhammad Shafique and Siddharth Garg
- "The Physics of Event-Driven IoT Systems," by Marilyn Wolf
- "Near Threshold Voltage (NTV) Computing: Computing in the Dark Silicon Era," by Vivek De, Sriram Vangal, and Ram Krishnamurthy
- "Impact of FinFET on Near-Threshold Voltage Scalability," by Nathaniel Pinckney et al.
- "Dark Memory and Accelerator-Rich System Optimization in the Dark Silicon Era," by Ardavan Pedram et al.

Upcoming Conferences (Yao-Wen Chang, ywchang@ntu.edu.tw)	
GLSVLSI	Alberta, Canada, 10-12 May 2017
WIE ILC	San Jose, California, 22-23 May 2017
ETS	Limassol, Cyprus, 22-26 May 2017
SMACD	Taormina, Italy, 12-15 June 2017
DAC	Austin, Texas, 18-22 June 2017

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***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 ieee-ceda.org/publications/d-t/paper-submission.**

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