



Special Interest Group on Design Automation ACM/SIGDA E-NEWSLETTER, Vol. 56, No. 10

SIGDA - The Resource for EDA Professionals

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Online archive: <https://www.sigda.org/newsletters/>

SIGDA News

1. AMD will Acquire Fei-Fei Li's World Labs for \$8.2 Billion

AMD is acquiring World Labs, one of the leading developers of deep learning models intended to understand physical reality, in an \$8.2 billion deal, the two companies said today.

2. AMD \$1 Trillion Market Cap Follows AI Data Centre Surge

AMD has crossed a \$1 trillion market capitalisation for the first time, putting the chip designer into a small group of semiconductor companies whose market value has reached 13 figures. Shares rose 9.6% to a record \$613.31 on Monday.

3. Qualcomm Snapdragon Sound Gen 2 Targets AI Wearables

Qualcomm has launched the Snapdragon Sound Elite Gen 2 Platform, aiming to bring more on-device AI, cloud connectivity, and adaptive audio capabilities to earbuds, headphones, smart glasses, and other wearable devices.

4. Marvell Unveils 2nm Optical Interconnects for AI Data Centers

Marvell Technology is demonstrating what it says are the industry's first 2nm optical interconnect technologies for AI data center infrastructure at ECOC 2026 in Málaga, Spain. The demos cover 400G-per-lane PAM4, 800G ZR/ZR+ pluggables with MACsec, 1.6T ZR and coherent-lite links, alongside a 102.4T co-packaged optics platform.

5. IBM Links Cryogenic Modules to Scale Fault-Tolerant Quantum Computing

Marvell Technology is demonstrating what it says are the industry's first 2nm optical interconnect technologies for AI data center infrastructure at ECOC 2026 in Málaga, Spain. The demos cover 400G-per-lane PAM4, 800G ZR/ZR+ pluggables with MACsec, 1.6T ZR and coherent-lite links, alongside a 102.4T co-packaged optics platform.

6. Micron Launches \$10BN AI Memory Research Hub

Micron Technology is setting up a long-term U.S. research hub with a planned \$10 billion investment over the next decade, targeting new memory, computing and semiconductor manufacturing technologies for the AI era. Micron Research Labs

Message from the EiC

Dear SIGDA members,

In this edition of the newsletter, we present the latest news and activities from our community, forthcoming paper submission deadlines and conferences, an insightful article on "What Is Asynchronous Inference?", and employment opportunities from institutions worldwide.

We welcome contributions of articles and announcements, as well as your comments and feedback. Please feel free to contact us at any time.

Sandeep Chandran,
Editor-in-Chief,
SIGDA e-Newsletter

will be headquartered in Boise, Idaho, with construction of its flagship facility expected to begin in 2027.

7. [NVIDIA secures 8 GW Ohio AI Campus for OpenAI](#)

NVIDIA has secured land, power and data center shell capacity at SB Energy's PORTS-Pike Technology Campus in Ohio, with the site set to exclusively host NVIDIA AI compute infrastructure. OpenAI will use the campus under a 20-year lease, while SB Energy will build, own and operate the data center.

8. [SK Hynix Launches \\$28BN Share Buyback](#)

SK hynix is accelerating its shareholder return program with a KRW40 trillion (\$28bn) share repurchase and cancellation plan, the largest treasury share cancellation announced by a South Korean listed company.

SIGDA Awards

1. Best Paper Award @ MLCAD 2026

<https://mlcad.org/symposium/2026/>

Segment-Level Rerouting with Reinforcement Learning for Routing Congestion Mitigation

*Gyumin Kim and Heechun Park
Ulsan National Institute of Science and Technology (UNIST)*

2. Best Artifact Award @ MLCAD 2026

<https://mlcad.org/symposium/2026/>

LOADbench: A Large Open Analog Dataset and Benchmark for Machine Learning in IC Design

Markus Leibl¹, Filipe Azevedo², Stefan Uhlich³, Andrea Bonetti⁴, Arun Venkitaraman⁴, Chia-Yu Hsieh⁴, Phuoc Pham¹, Lorenzo Servadei^{3, 1}, Helmut Graeb¹, Ricardo Martins²

¹ Technical University of Munich (TUM), Germany, | ² Universidade de Lisboa, Portugal | ³ Sony Semiconductor Solutions Europe | ⁴ Sony AI

3. MLCAD Contest 1st place @ MLCAD 2026

<https://mlcad.org/symposium/2026/>

An Autonomous, Self-Evolving LLM Agent for Design-Adaptive QoR Optimization

*Taiyu Zhou, Jing Zhou, and Jingyi Zhou
Functech*

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*Xin Zhao,
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*Ying Wang,
AE for Technical activities*

*Jiaqi Zhang,
AE for Technical activities*

What is Asynchronous Inference?

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Modern deep learning inference is overwhelmingly synchronous. A network runs layer by layer, and the next layer cannot start until every neuron in the current one has been evaluated (sometimes called “layer synchronization”, or “global time-step”). Because each layer must finish completely before the next one begins, the delays of all layers add up, and the first result appears only after the whole network has run. Biological neural networks do not work this way. In such systems, the output begins to emerge while the input is still arriving, a property known as “pseudosimultaneity” [1]. For example, we start reacting to an object approaching us before we recognize what it is.

Asynchronous inference is inference without that barrier. Each layer computes and emits its results as soon as its inputs arrive, rather than waiting for a global step, so partial outputs ripple through the network's depth while the input is still being received. The familiar case is the event-based vision sensor. An event-based camera has no frame and no shutter, and its pixels fire asynchronously and independently, each reporting only when its own brightness changes [2]. Asynchronous inference applies the same principle in every layer, not just at the input. Hidden neurons, like pixels, fire as soon as their own evidence is ready, so information flows toward the output continuously rather than in layer-wide steps. The main payoff is latency. A partial result is available almost immediately and grows more accurate as more of the input is processed, which is exactly the pseudosimultaneity above [3]. Acting only on what changes lowers energy as well, but latency is where asynchronous inference makes the sharpest difference.

Asynchronous inference is an algorithm-level property: the absence of a global time step or layer barrier, and it is independent of whether the underlying circuit happens to be clocked. Removing this barrier, so that events ripple through the depth as soon as they are produced, is an active research direction with real gains in latency [4,5]. The open question is how to keep results correct once neurons no longer fire in a fixed order, since the outcome can then depend on the order in which events are processed, and that order depends on the hardware the network runs on. Fully asynchronous inference, with no hidden barriers anywhere in the network, remains an open goal.

References:

- [1] J. A. Perez-Carrasco, et al. "Mapping from frame-driven to frame-free event-driven vision systems by low-rate rate coding and coincidence processing: application to feedforward ConvNets." IEEE Transactions on Pattern Analysis and Machine Intelligence 35.11 (2013): 2706-2719.
- [2] P. Lichtsteiner, et al. "A 128x128 120 dB 15 μ s latency asynchronous temporal contrast vision sensor." IEEE Journal of Solid-State Circuits 43.2 (2008): 566-576.

Paper Deadlines

ISCAS'27 – IEEE Int'l Symposium on Circuits and Systems
Bordeaux, France
Deadline: Oct. 22, 2026
June 6-9, 2027
<https://2027.ieee-iscas.org/>

RTAS'27 - IEEE Real-Time and Embedded Technology and Applications Symposium
Boulder, USA
Deadline: Nov. 5, 2026
May 17-20, 2027
<http://2027.rtas.org>

HOST'27 – IEEE Int'l Symposium on Hardware-Oriented Security and Trust
Washington DC, USA
Deadline (winter submission): Nov. 8, 2028 (Abstracts due: Nov. 1, 2025)
May 3-6, 2027
<http://www.hostsymposium.org>

DAC'27 – Design Automation Conference
San Jose, USA
Research Paper Deadline: Nov. 18, 2026 (Abstracts due: Nov. 11, 2026)
Engineering Tracks Deadline: Jan. 11, 2027
July 11-14, 2027
<http://www.dac.com/>

[3] Yousefzadeh, Amirreza, et al. "Asynchronous spiking neurons, the natural key to exploit temporal sparsity." IEEE Journal on Emerging and Selected Topics in Circuits and Systems 9.4 (2019): 668-678.

[4] R. Koopman, et al. "Exploring the limitations of layer synchronization in spiking neural networks." Transactions on Machine Learning Research, Volume 2025-September

[5] A. Yousefzadeh, et al. "Performance comparison of time-step-driven versus event-driven neural state update approaches in SpiNNaker." 2018 IEEE International Symposium on Circuits and Systems (ISCAS). IEEE, 2018.

SIGDA Partner Journal

ACM Transactions on Design Automation of Electronic Systems (TODAES)

features groundbreaking research and development in the specification, design, analysis, simulation, testing, and evaluation of electronic systems, with a focus on computer science and engineering. The journal's impact factor increased to 2.2 in 2023, more than doubling its value from 2020. Additionally, each issue highlights a notable contribution as the Editor's Pick for special recognition.

TODAES also recognizes papers and outstanding junior researchers through the [best paper](#) and [rookie of the year](#) awards. Authors can send their paper submissions to the [manuscript portal](#).

TODAES welcomes special issue proposals from leading researchers and practitioners. Such proposals should be emailed to Prabhat Mishra, Senior Associate Editor, at prabhat@ufl.edu

SIGDA Vision 2030

ACM SIGDA is launching SIGDA Vision 2030, a community-driven initiative to identify key challenges and define strategic priorities for the Design Automation field.

You can contribute by completing a short survey (5-10 minutes): <https://bit.ly/SIGDA-Vision-2030-Survey>

The input collected will be discussed in upcoming interactive sessions at major conferences (including DATE, DAC, and ICCAD) and will contribute to a strategic report outlining priorities and concrete actions for the coming years. Your input is extremely valuable in shaping the future of the community.

Technical Activities

1. Smarter Buildings, Safer Occupants: Intelligence Meets Privacy

Personal safety and security allow no compromise. From access control and video surveillance to smoke and fire alarms, HVAC, and lighting, modern building

Upcoming Conferences

VLSI-SoC'26 – IFIP/IEEE Int'l Conference on Very Large Scale Integration

Limassol, Cyprus

Oct. 11-14, 2026

<http://www.vlsi-soc.com>

MICRO'26 – IEEE/ACM Int'l Symposium on Microarchitecture

Athens, Greece

Oct. 31 - Nov. 4, 2026

<http://www.microarch.org/micro59>

ICCAD'26 – IEEE/ACM Int'l Conference on Computer-Aided Design

San Jose, USA

Nov 8-12, 2026

<https://iccad.com/>

ICCD'26 – IEEE Int'l Conference on Computer Design

Hong Kong, China

Nov. 16-18, 2026

<http://www.iccd-conf.com>

FPT'26 - Int'l Conference on Field-Programmable Technology

Honolulu, USA

Dec. 7-10, 2026

<http://icfpt.org>

iSES'26 – IEEE Int'l Symposium on Smart Electronic Systems

Goa, India

Dec. 15-17, 2026

<http://www.ieee-ises.org>

VLSID'27 – International Conference on VLSI Design & International Conference on Embedded Systems

Bengaluru, India

Jan 2-6, 2027

<https://vlsid.org/>

automation systems are designed to optimize energy efficiency while safeguarding the health, safety, and security of occupants...

2. Architect Labs Targets Two-week Chip Design Cycle with AI-Driven Verification

The startup, Architect Labs, combines AI-based design and verification with internal tools to accelerate complex ASIC development from concept to silicon...

3. Centralized Compute and Standardized Interfaces Reshape Humanoid Robot Architectures

Humanoids need standardized interfaces to manage growing sensor bandwidth, synchronization, power, and wiring constraints efficiently...

4. AI Power Demands Push GaN into Data Center Design

Rising AI power demands are pushing data center designers toward GaN-based power conversion for higher efficiency and density...

Job Positions

The Chinese University of Hong Kong, China

Job Title: Research Assistant Professor of Electronic Engineering

Description: The Department of Electronic Engineering (EE) at the Chinese University of Hong Kong (CUHK) is seeking outstanding candidates for Research Assistant Professorship (RAP). The research focuses on developing advanced energy saving technologies that integrate innovative materials, devices, and systems to enable intelligent detection and optical modulation. Key areas include smart materials design, optical modulation, and machine learning design for applications in energy saving, encryption, anticounterfeiting and beyond. The appointee will work closely with Professor Long Yi in the Department to enhance the existing strengths. The appointee is expected to: (a) be able to have top-tier research outputs and apply for RGC GRF grants and similar external competitive grants; (b) undertake some teaching duties at undergraduate and postgraduate levels; and (c) provide service at departmental, faculty and/or university levels. For more information, please refer to <https://engineeroxy.com/research-assistant-professor-of-electronic-engineering.15285.html>.

University of Toronto, Canada

Job Title: Assistant Professor of Electrochemical Engineering

Description: The Department of Chemical Engineering & Applied Chemistry in the Faculty of Applied Science & Engineering at the University of Toronto invites applications for a full-time tenure stream position in the general area of electrochemical engineering. The appointment will be at the rank of Assistant Professor, with an anticipated start date of July 1, 2027. This search aligns with the University's commitment to strategically and proactively promote diversity among our community members (Statement on Equity, Diversity & Excellence).

ASP-DAC'27 - Asia and South Pacific Design Automation Conference

Tokyo, Japan
Jan. 25-28, 2027
<http://www.aspdac.com>

ISSCC'27 – IEEE Int'l Solid-State Circuits Conference

San Francisco, USA
Feb. 14-18, 2027
<http://isscc.org>

DATE'27 - Design Automation and Test in Europe

Dresden, Germany
March 22-24, 2027
<http://www.date-conference.com>

ISQED'27 - Int'l Symposium on Quality Electronic Design

San Francisco, USA
Apr. 14-16, 2027
<http://www.isqed.or>

ISPD'27 – ACM Int'l Symposium on Physical Design

Taiwan
Mar 31- Apr. 2, 2027
<http://www.ispd.cc/>

Recognizing that women, Black, Indigenous, and other Racialized communities have experienced inequities that have developed historically and are ongoing, we strongly welcome and encourage candidates from those communities to apply. Areas of interest include, but not limited to, electrocatalysis and electrochemical reaction engineering; energy storage and conversion (including batteries, fuel cells, electrolyzers, and redox-flow systems); electrochemical synthesis and manufacturing; carbon dioxide conversion and sustainable fuels and chemicals; electrochemical materials, interfaces, transport, and operando characterization; and computational and data-driven electrochemical engineering. For more information, please refer to <https://facultyvacancies.com/assistant-professor-of-electrochemical-engineering.i46978.html>.

RMIT University, Australia

Job Title: Academic Position in Communication/Network Engineering

Description: MIT University is seeking to appoint an outstanding academic in Communication/Network Engineering within the Department of Electrical and Electronic Engineering, School of Engineering. This is one continuing, full-time position that may be appointed at Academic Level C, D or E, depending on the successful candidate's experience, track record and level of appointment sought. The successful candidate will contribute to teaching, research, industry engagement and academic leadership in areas including communication engineering, network engineering, network security, telecommunications infrastructure, wireless and space communications, 6G and beyond, and advanced communication and networking technologies. We are particularly interested in candidates with strong theoretical foundations and hands-on expertise in the design, development, integration and validation of telecommunications systems, including capability in areas such as software-defined radios, RFSocs, RF and millimetre-wave systems and devices, high-speed signal processing, embedded system design, network simulators and emulators, network security simulators, and network testbeds such as ORAN. For more information, please refer to <https://facultyvacancies.com/academic-position-in-communicationnetwork-engineering.i46920.html>.

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