

2020 SIGDA Annual report

Drafted by

SIGDA Executive Committee Members

SIGDA has been a vibrant special interest group which sponsors and organizes multiple activities benefiting the design and design automation community. Due to the outbreak of coronavirus (COVID-19), this past year has presented special challenges but also some good opportunities for outreach. Below are the highlights of the activities for the reporting period.

AWARDS

SIGDA gave out two major research related awards in this reporting period.

SIGDA Pioneer Achievement Award:

To honor a person for lifetime, outstanding contributions within the scope of electronic design automation, as evidenced by ideas pioneered in publications, industrial products, or other relevant contributions. The award is based on the impact of the contributions throughout the nominee's lifetime.

- The SIGDA 2020 Pioneering Achievement Award winner is Professor Giovanni De Micheli, EPFL, *for pioneering and fundamental contributions to synthesis and optimization of integrated circuits and networks-on-chip.*

A. Richard Newton Technical Impact Award in Electronic Design Automation

To honor a person or persons for an outstanding technical contribution within the scope of electronic design automation, as evidenced by a paper published at least ten years before the presentation of the award. This award is jointly sponsored by ACM SIGDA and IEEE CEDA.

- The ACM/IEEE A. Richard Newton Technical Impact Award in Electronic Design Automation in 2020 goes to Luca Benini and Giovanni De Micheli for their paper "Networks on Chips: A New SoC Paradigm," *IEEE Computer*, pp. 70-78, January 2002.

SIGDA gave out two awards targeting junior researchers in this reporting period.

ACM Outstanding Ph.D. Dissertation Award in Electronic Design Automation

This award is given an outstanding Ph.D. dissertation that makes the most substantial contribution to the theory and/or application in the field of electronic design automation.

- The winner of the 2020 ACM Outstanding Ph.D. Dissertation Award in Electronic Design Automation is Gengjie Chen, for the dissertation "*VLSI Routing: Seeing Nano*

Tree in Giga Forest,” The Chinese University of Hong Kong (Advisor: Evangeline Young).

SIGDA Outstanding New Faculty Award

This award recognizes a junior faculty member early in her or his academic career who demonstrates outstanding potential as an educator and/or researcher in the field of electronic design automation.

- The SIGDA Outstanding New Faculty Award in 2020 goes to Pierre-Emmanuel Gaillardon, University of Utah.

SIGDA gave out two service related awards in this reporting period.

Distinguished Service Award

This award is given to individuals who have dedicated many years of their career in extraordinary services to promoting, leading, or creating ACM/SIGDA programs or events.

- The 2020 SIGDA Distinguished Service Award goes to Sri Parameswaran, University of New South Wales, *for leadership and distinguished service to the EDA community.*

Meritorious Service Award

This award is given to individuals who have performed professional services above and beyond traditional service to promoting, leading, or creating ACM/SIGDA programs or events.

- The 2020 SIGDA Service Award recipients are
 - Aida Todri-Sanial, LIRMM/University of Montpellier, *for service as Co-Editor-in-Chief of SIGDA e-Newsletter from 2016 to 2019 and other SIGDA activities;*
 - Yu Wang, Tsinghua University, *for service as Co-Editor-in-Chief of SIGDA e-Newsletter from 2017 to 2019 and other SIGDA activities.*

SIGNIFICANT PAPERS

The paper below received the 2020 ACM TODAES best paper award. The paper significantly advances the area of system-on-chip verification.

- Bo-Yuan Huang, Hongce Zhang, Pramod Subramanyan, Yakir Vizel, Aarti Gupta, and Sharad Malik, “[Instruction-Level Abstraction \(ILA\): A Uniform Specification for System-on-Chip \(SoC\) Verification](#)”, *ACM Transactions on Design Automation of Electronic Systems*, Volume 24, Issue 1, Article 10, January 2019.

INNOVATIVE PROGRAMS

SIGDA devoted significant efforts to improve diversity and industry relations. Furthermore, in response to the COVID-19 situation, SIGDA, in collaboration with IEEE CEDA, initiated a new virtual seminar series. These activities are summarized below.

Diversity Effort

SIGDA is committed to advancing diversity and broadening the participation of professionals from under-represented groups within the design and design automation community. SIGDA has set aside fund specifically for diversity related efforts. The fund is managed by the SIGDA Diversity Committee (currently with 11 members spreading across North and Asia, Europe and South America, and chaired Evangeline Young, Chinese University of Hong Kong).

In this annual report period, SIGDA has sponsored the SIGDA Career and Diversity Session in ICCAD 2019, where 3 young professionals (one female) shared their career experience, and a female professor presented an invited talk. SIGDA Diversity Advancement supported four students to travel to ICCAD 2019 (November, 2019): two are female, one from Honduras and one from India. These students submitted reports documents their experience at ICCAD. SIGDA had planned to provide more travel supports to under-represented students, but due to COVID-19, no more travel supports were given out. SIGDA also co-sponsored Diversity in EDA Forum (DivEDA) which was supposed to take place at Design Automation and Test in Europe (DATE), 2020. However, due to COVID-19, DATE 2020 turned virtual and DivEDA was cancelled.

Industry Collaboration

SIGDA launched an industrial advisory board (IAB) composed of representatives from relevant companies. The goals of the IAB are: 1) serving as the bridge between SIGDA and the industrial community to coordinate the efforts in education, research, and technology development; 2) Providing guidance and suggestions to SIGDA for better serving the needs of industry; 3) Building a strong SIGDA community in the industry sector; and 4) Helping to solicit supports industry. The founding chair of the IAB is Patrick Haspel from Synopsys Inc.

Design Automation WebiNar (DAWN)

Due to the outbreak of COVID-19, almost all conferences/symposiums in the design automation community are cancelled/postponed. To drive research momentum and ensure our community remains at the cutting edge, SIGDA worked with IEEE CEDA to launch Design Automation WebiNar (DAWN). Different from typical keynote- and sole-speaker-style webinars, DAWN is a special-session-style webinar. Each DAWN event consists of multiple presentations on focused topics by leading experts in our community. DAWN has organized three events so far. The response from the community was extremely encouraging. The attendance of the past events ranged from 120 to more than

300 (the cap of the Zoom platform used was 300). The events were recorded and made available for online streaming as well. More details about DAWN can be found at: www.eda-dawn.org.

Mini Workshop on Holding Virtual Conferences

SIGDA held a mini workshop (June 16th, 2020) for SIGDA-sponsored conferences with the particular goal to support conferences with their plans to go virtual. Since there was not much experience available, the workshop was planned as a platform to exchange ideas and experiences with various virtual formats. During the mini workshop, conferences that already had their events virtually shared their experience while others presented their virtual plans. It became clear that there is no solution that fits all, mainly because the size of each event is quite different. We believe though that this mini-workshop was a helpful first step and a platform for exchanging ideas/experience to plan and conduct virtual events.

OUTREACH ACTIVITIES

Because the flagship conference of SIGDA, Design Automation Conference (DAC), went virtual this year, SIGDA partnered with DAC to significantly expand and modify the Design Automation Summer School (DASS) co-located at DAC. Instead of selective attendance done in the past, DASS 2020 allowed any student to register. The event was held virtually, and was attended by 421 students from 37 countries, of which 43 were minorities or from underrepresented groups. The students were able to attend DAC, and gave a video presentation on their favorite research presentations. They also gave a short video presentation to their “classmates” about their research interests and areas. They attended guest lectures on design and design automation of electronic chips and systems. The students also completed a hands-on and online lab using, where they synthesized a Convolutional Neural Network accelerator for image recognition.

SIGDA typically supports two international summer schools: 1) International Seasonal School on Physical Design Automation, which is now in its third edition. Unfortunately, due to COVID-19, both were cancelled.

Besides the above activities, SIGDA communicates using SIGDA E-News and continues to deliver an online education program: SIGDA Live Webinar, which is held bimonthly.

KEY ISSUES FACING SIGDA

1. The transition to virtual formats for conferences during COVID, opens new opportunities and challenges that need to be pursued. The transition to virtual format for exhibits remains a challenge and has the potential to be a significant financial stress on SIGDA, if virtual format continues.

2. The impact of co-location of the Design Automation Conference with SEMICON West, which was delayed due to COVID, needs to be evaluated. With proper attention, this has the potential to enhance the reach of SIGDA even further.
3. SIGDA will need to continue investing in new topics and in geographically diverse locations as membership growth increases outside the US.