2019 SIGDA Annual report

Drafted by

SIGDA Executive Committee Members

SIGDA has been a vibrant special interest group with multiple activities benefiting the design and design automation community. This is the first year of a new executive committee team. Besides continuing the activities that benefited the community, we have formed two new committees: Diversity Committee and Industry Committee. These two committees aim to strengthen our programs in promoting diversity and connections to industry. We are putting in more effort to broaden participation in areas outside the US. Finally, SIGDA announced the continuation of partnership with Cadence in sponsoring several educational activities.

AWARDS

SIGDA gave out two major awards in 2019.

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 2019 Pioneering Achievement Award winner is Professor **Alberto Sangiovanni Vincentelli,** UC Berkeley, *for his pioneering and fundamental contributions to design automation research and industry, in system-level design, embedded systems, logic synthesis, physical design and circuit simulation*.

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.

The ACM/IEEE A. Richard Newton Technical Impact Award in Electronic Design Automation in 2019 goes to E. B. Eichelberger and T. W. Williams for their paper "A Logic Design Structure for LSI Testability," *In Proc. of the 14th Design Automation Conference, 1977*.

SIGDA also gave out a list of other awards.

- The winner of the 2019 ACM Outstanding Ph.D. Dissertation Award in Electronic Design Automation is Tsung-Wei Huang, for the dissertation "*Distributed Timing Analysis*," University of Illinois, Urbana-Champaign (Advisor: Martin D. F. Wong).
- The SIGDA Outstanding New Faculty Award in 2019 goes to Jeyavijayan (JV) Rajendran, Texas A&M University.
- SIGDA has restructured its service awards in 2019, and will be giving two-level of annual service awards:
    - Distinguished Service Award: The SIGDA Distinguished Service 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.
    - Meritorious Service Award: The SIGDA Meritorious Service 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.
    - At any given year, the number of Distinguished Service Award will be up to 2, and the number of Meritorious Service Award will be up to 4.

The 2019 SIGDA Service Award recipients are as follows.

Distinguished Service Awards

- **Naehyuck Chang**, Korea Advanced Institute of Science and Technology. *For many years of impactful service to ACM/SIGDA in various leadership positions*.
- **Sudeep Pasricha**, Colorado State University
  "*For a decade of outstanding service to ACM/SIGDA in various volunteer positions*"

Meritorious Service Awards

- Yinhe Han, Chinese Academy of Sciences. "For outstanding effort in promoting EDA and SIGDA events in China"
- Jingtong Hu, University of Pittsburgh. "For contribution to multiple SIGDA education and outreach activities"
- Xiaowei Xu, University of Notre Dame. "For contribution to the 2018 System Design Contest at ACM/IEEE Design Automation Conference"

INNOVATIVE PROGRAMS

SIGDA devoted new effort to improve diversity and industry relations. Specifically, we formed two new committees with volunteers from the community.

Diversity Effort

SIGDA is committed to advancing diversity and supporting a vibrant and diverse group of professionals within the design and design automation community. To help accomplish this mission, we have formed the SIGDA Diversity Committee. Currently, there are 11

members on the committee, and the members spread across North and South America, Asia, and Europe. The chair of the committee is Evangeline Young, Chinese University of Hong Kong. The committee had a physical meeting at DAC and introduced SIGDA Diversity Advancement Grants. The committee is also seeking proposals about programs to better enhance diversity in EDA.

Industry Collaboration

Cadence continues to be the official "SIGDA Global Education Partner" since June 1, 2018 with an annual sponsorship for multiple SIGDA education activities.

SIGDA recently approved and launched an Industry Committee. The goals of Industry Committee are: 1) Serve as the bridge between SIGDA and industrial community to coordinate the efforts in education, research, and technology development; 2) Provide guidance and suggestions to SIGDA for better serving the needs of EDA industry; 3) Build a strong SIGDA community in EDA industry sector; and 4) Help to solicit supports to SIGDA from industry. The committee is composed of the representatives from major companies in the EDA or relevant industrial sectors. The first chair of Industry Committee is Patrick Haspel from Cadence.

SIGNIFICANT PAPERS

The paper below has won the 2019 ACM TODAES best paper award and it represents a new direction in design automation i.e. design automation for cyber-physical systems.

Philipp Mundhenk, Andrew Paverd, Artur Mrowca, Sebastian Steinhorst, Martin Lukasiewycz, Suhaib A. Fahmy, and Samarjit Chakraborty. 2017. Security in Automotive Networks: Lightweight Authentication and Authorization. ACM Trans. Des. Autom. Electron. Syst. 22, 2, Article 25 (March 2017), 27 pages. DOI: https://doi.org/10.1145/2960407

MAJOR ACTIVITES and OUTREACH

SIGDA supported two international summer schools: 1) International Seasonal School on Physical Design Automation, which is now in its third edition. The event was held from July 29 to Aug. 2, 2019 in Beijing, China, with approximately 110 attendees. This year the event offered 5-day lectures on key subjects related to physical design of integrated circuits (IC) in advanced technology nodes, covering not only fundamental algorithms, computational methods, and modern AI techniques, but also new challenges for the implementation of ever more complex circuits and systems. 2) Seasonal School on Circuits and Systems on IoT, also in its third edition. The event was held from August 5 to August 7 in Porto Alegre, Brazil. The School's technical program included 8 courses of 3 hour each. There was also a panel each day that involved participants into discussions related to the subjects covered, as well as a poster session.

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.

Other education activities

In the past year, ACM SIGDA continues organizing the following education activities. More details can be found on SIGDA webpage.

- PhD/Student Research Forums at DAC, DATE, and ASPDAC
- Design Automation Summer school at DAC
- University Research Demonstration at DAC
- CADAthlon at ICCAD
- CAD Contest at ICCAD
- ACM Student Research Competition (SRC) at ICCAD
- Early Career Workshop at DAC
- Ph.D. Forum at DATE
- Student Research Forum at ASPDAC

Activities associated with financially sponsored or in-cooperated conferences

- Sponsored/in-cooperated conferences
    - 16 financially sponsored conferences approved

The following is a list of events financially (co)sponsored by SIGDA.

1. Hardware and Algorithms for Learning On-a-chip at ICCAD

KEY ISSUES FACING SIGDA

1. Design automation conference which is a flagship conference of SIGDA is experimenting a new phase of colocation with SEMICON West and also staying in San Francisco. With proper attention, this has the potential to enhance the reach of SIGDA even further.

2. SIGDA will need to continue investing in new topics and in geographically diverse locations as membership growth increases outside US.

3 SIGDA needs to continue establishing itself as a unique brand while continuing to cooperate with other sister organizations.