

## SIGARCH Annual Report

July 2016 – June 2017

### OVERVIEW

Our previous annual report discussed the launching of several new initiatives to address each of the three components of our recently revised mission statement – technical exchange, talent development and recognition, and outreach. Several of these initiatives came to fruition this year, thanks to many volunteers from the broader community. Notable successes are the **annual visioning workshops program, the new Computer Architecture Today blog, and the lightning student mentoring sessions at the ISCA conference**. Our work was applauded by the Computing Community Consortium (CCC) in their blog post - [Computer Architecture Visioning – Why Not Emulate](#) – as an activity for other communities to emulate. We, in turn, thank the CCC for providing us with the inspiration for and supporting our visioning workshops and new blog. The rest of this report describes our key activities under the three components of our mission statement.

### TECHNICAL EXCHANGE

**(1) Meetings:** SIGARCH (co-)sponsors a strong portfolio of conferences, many of which co-host a variety of highly attended specialized workshops and tutorials on leading edge topics. The premier conference for computer architecture, ISCA, co-sponsored with IEEE-CS TCCA, was held in Toronto in June '17 and once again featured a strong technical program with 54 papers, 2 keynotes, and a panel, along with 6 tutorials and 9 workshops, with over 600 attendees and a record 322 paper submissions. A highlight this year was the first of our new annual visioning workshop series described below.

**(2) Annual SIGARCH visioning workshops:** SIGARCH launched an annual visioning workshop program, driven by Luis Ceze, Joel Emer, and Karin Strauss, to catalyze and enable innovative research within computer architecture, and between computer architecture and other areas. An open [call for proposals](#) for workshops is on the SIGARCH web site. Successful activities will articulate new research visions, galvanize community interest in those visions, mobilize support for those visions from the computer architecture research community, government leaders, and funding agencies, and encourage broader segments of society to participate in computer architecture research and education. The first workshop, “Trends in Machine Learning,” driven by Olivier Temam and the SIGARCH visioning committee, brought together some of the top academic and industry researchers in machine learning at ISCA in June and was very well received with 186 attendees. In a pilot program, we will make professionally edited videos of the talks available from the ACM library and on a YouTube channel.

**(3) Reviewing the review process:** The SIGARCH business meeting at ISCA '16 included an energetic discussion on our review processes. Based on input from the audience, SIGARCH, in conjunction with TCCA, appointed a “Reviewing Reviewing (R2)” committee to undertake a review of the ISCA peer-review process to systematically identify shortcomings (if any) and propose changes (if needed). The committee reported the results of a comprehensive survey of the community at the ISCA '17 business meeting. The detailed (anonymous) survey was developed with help from polling/survey experts with the goal of identifying what currently works well and what does not from both authors' and PC/ERC members' perspectives. The survey was sent to SIGARCH and TCCA members as well as to attendees of recent ISCA's. There were 621 responses over two weeks. The survey report identified areas on which there was agreement on what works well and what needs to be improved as well as areas where there is a significant split among different constituencies. The next phase will involve a study of best practices in other areas and converting this information and the survey results into actionable suggestions for improvement. We thank the committee members for their continued hard work: Natalie Enright Jerger, David Kaeli (co-chair), Christos Kozyrakis (co-chair), Gabriel Loh, Tom Wenisch, and David Wood.

## TALENT DEVELOPMENT AND RECOGNITION

**(1) ACM/IEEE Eckert-Mauchly award:** This is the most prestigious award in computer architecture given for contributions to computer and digital systems architecture. The 2017 recipient was Charles P. “Chuck” Thacker for “pioneering contributions to the design and development of personal computer architecture including the Xerox Alto, the first tablet computers, and cache coherence protocols”. SIGARCH is deeply saddened that Chuck passed away a few days before the award ceremony. We thank Microsoft Research and Chuck’s family for helping us organize a memoriam to honor Chuck’s life in lieu of the awards ceremony at ISCA.

**(2) SIGARCH Maurice Wilkes award:** This is the most prestigious award given to a researcher in the first 20 years of their career and went to Lieven Eeckhout for “outstanding contributions to computer architecture performance analysis and modeling.”

**(3) SIGARCH/TCCA influential ISCA paper award:** This award recognizes a paper from the ISCA 15 years earlier. The 2017 recipient was “Drowsy Caches: Simple Techniques for Reducing Leakage Power” by Kris Flautner, Nam Sung Kim, Steve Martin, David Blaauw, and Trevor Mudge.

**(4) ASPLOS influential paper award:** This award recognizes an ASPLOS paper from 10 or more years ago. The 2017 recipient was “Automatically Characterizing Large Scale Program Behavior” by Timothy Sherwood, Erez Perelman, Greg Hamerly, and Brad Calder from ASPLOS 2002.

**(5) SIGARCH Alan D. Berenbaum Distinguished Service Award:** Last year, we mourned the untimely loss of Alan D. Berenbaum and renamed our service award in honor of his many contributions to the SIGARCH community. The winner from last year, Michael J. Flynn, accepted the award from Eileen Lach, Alan’s partner, at ISCA this year at a moving ceremony and to a standing ovation for “founding ACM SIGARCH and IEEE TCCA.” There was no award given for this year.

**(6) Travel and child care grants:** Student travel grants for conferences is our flagship benefit for student members. All conferences where SIGARCH co-sponsors at a level greater than 33% were eligible for student travel grant support. As an example, for ISCA’17, all students who applied by the deadline received some grant either from SIGARCH or TCCA. To assess the impact of the grants, we conducted surveys before and after ISCA 2016 (thanks to Hyesoon Kim) and reported the results at the 2017 business meeting. 39% of the respondents said they would come to ISCA only if they received some travel grant. 5% of the students used personal funds to cover the difference between actual costs and these travel grants. SIGARCH was a pioneer in supporting travel grants for companions for childcare or disability support. These have expanded to supporting on-site childcare. We are pleased to see an increase in applications for these grants as well as to see IEEE TCCA supporting its own similar program.

**(7) SIGARCH/TCCA outstanding dissertation award:** ACM and IEEE have approved a new joint SIGARCH/TCCA outstanding dissertation award, driven by Natalie Enright Jerger. The first award will be given at ISCA 2018.

**(8) Lightning mentoring sessions:** We ran a successful pilot, “Meet a Senior Architect” at ISCA’16, where 17 senior architects signed up to mentor 33 graduate students in one-on-one 30 minute sessions. This was a resounding success as assessed through informal feedback and a formal survey. We expanded the program this year, chaired by Joel Emer. We had 50 mentors and 80 students sign up! A side benefit was that 20 of these students became new SIGARCH members.

**(9) Women In Computer Architecture (WICArch):** SIGARCH has continued to support the CRA-W (Computing Research Association subcommittee on the status of women) grad cohort program that mentors women graduate students. A new effort to strengthen the existing Women In Computer Architecture (WICArch) organization is underway, led by Natalie Enright Jerger.

**(10) Honoring recently retired and deceased members:** Jointly with TCCA, we announced a program to honor at ISCA the contributions of members of our community who have recently retired or passed away. Beginning

informally this year, we honored Mark Franklin and Mary Jane Irwin. A formal procedure will be posted on our web sites for future honorees.

## **OUTREACH**

**(1) Computer Architecture Today Blog:** SIGARCH has traditionally published a conventional newsletter, Computer Architecture News (CAN) that has had a decline in submissions and readership over the years and whose function had been replaced in part by a monthly SIGARCH mailing with event announcements. This year, we phased out CAN and replaced it with a blog, [Computer Architecture Today](#), whose purpose is to advertise exciting developments in computer architecture and related areas broadly. Alvin Lebeck is the inaugural editor, with support by Babak Falsafi from the EC. From all accounts, the blog has been a success. In addition to articles on hot topics in architecture, it has attracted several articles from researchers outside architecture challenging architects to address broader problems.

**(2) Other communications and outreach:** We revamped our communications and outreach, led by Babak Falsafi, including the blog mentioned above, a [new web site](#) that cohesively brings together all our activities, a new logo, and a Twitter account with Adrain Sampson as the inaugural editor, assisted by Amrita Mazumdar. Boris Grot, our information director, continues to manage our monthly mailing with events and our web site. We have also increased our collaboration with TCCA with new joint activities (some of which are described above) as well as inviting the TCCA chair to the EC's monthly meetings.

## **VOLUNTEER DEVELOPMENT PROCESS**

We do not have a formal volunteer development process except to have the executive committee lead by example through its hard work. The community remains enthusiastic and we have been fortunate to be able to attract volunteers as needed, ranging from graduate students to senior researchers.

## **SUMMARY**

SIGARCH remains a financially healthy and vibrant organization with a broad and enthusiastic membership and committed leadership. In the previous year, we restructured the EC as a working committee with each EC member leading at least one project and all members meeting at a monthly teleconference. This restructuring and the enthusiastic support of the broader community has enabled us to launch several new programs successfully over the last two years. We also gratefully acknowledge the ACM staff, notably Ashley Cozzi, for their support and for graciously handling the increased workload.

Respectfully submitted,

Sarita Adve, Chair

On behalf of the SIGARCH Executive Committee

Joel Emer

Babak Falsafi

Natalie Enright Jerger

Scott Mahlke

Parthasarathy Ranganathan

Karin Strauss

David Wood