Message from the Program Chairs
MICRO 2018

Welcome to MICRO 51! It has been a privilege and an honor to serve as the Program Chairs. MICRO 51 saw a record number of submissions reflecting a growing community. The diversity of papers covering the spectrum of emerging research areas and traditional MICRO topics reflects continued vibrancy of our community. We were fortunate to be able to assemble a talented and diligent program committee of 71 members made of researchers from industry and academia and reflecting the geographic, experience, and gender diversity of our community. The following describes the main operational elements and results of the PC operations.

Submission and Review Process
We received 351 submissions and accepted 74 papers including 8 papers identified as needing shepherding corresponding to an acceptance rate of 21%. We employed a two-stage review process. In Round 1 each paper received 3 reviews from PC members. Due to the distribution of such a large number of papers across topical areas, we recruited 24 external reviewers. We used an automated system (HotCRP) that proposed approximately 10-15 reviewers per paper. Using this list as an advisory and over a period of over a week, the PC Chairs manually assigned reviewers to each paper. We strived to balance the reviewer load across PC members. An average of 14.49 papers were assigned to each reviewer. Each paper was assigned a discussion lead for the processes described below.

We did not use a numerical threshold for advancing papers to round 2. Rather, the reviewers evaluated each paper and through an online discussion period unanimously decided whether a paper was rejected or moved to Round 2. If the reviewers could not reach a unanimous decision, the paper was moved to Round 2. Further, any paper i) with only reviewers with expertise level less than 3 (on a scale of 1-4), or ii) less than 3 reviews automatically moved to Round 2. Reviewers deferred to obtaining additional reviews when doubt was the prevailing philosophy for decisions on moving to Round 2. 132 papers were rejected in Round 1 and three papers were withdrawn after Round 1 resulting in 216 papers advancing to Round 2. We obtained 2 more reviews for each paper in Round 2 thus each paper had 5 reviews from PC members. We requested an additional 6th review for some papers – for example those with i) bimodal distributions of overall merit, or ii) low average expertise. This resulted in an average total number of reviews of 20.79 for each PC member and a total of 1536 reviews (in which 60 reviews are external).

One of the main motivations for the 2-round review process was a broader representation of a paper’s contents at the PC meeting with all 5 reviewers (PC members) who had read the paper being present for discussions at the PC meeting.

Rebuttal
We provided a one-week rebuttal period. Authors also had the option of submitting a light weight revision along with their rebuttal. While we did not envision a full revision, this approach was motivated by the idea that sometimes it is easier to respond to reviewer’s questions in context. In retrospect, it would have been less stressed if the rebuttal period was longer.

Online Discussion
Post-rebuttal, the reviewers participated in an active on-line discussion over a period of one week with an additional day prior to the PC meeting to continue discussions. In retrospect, a longer period would have better and reduced the pressure on the PC members given the large number of papers involved. All papers that were advanced to Round 2 were subject to online discussion. The reviewers sought unanimous decisions for online-accept, online-reject, online-PCDiscuss. Many reviewers found the revisions and rebuttals informative. Online decisions were required to be unanimous. 30 papers were tagged as online-accept, 22 papers tagged as online-reject. Reviewers were asked to finalize their post-rebuttal score of overall merit. However, we recognized that in response to the PC meeting discussions, reviewers might change their scores.
PC Meeting
We had an excellent turnout for the PC meeting held in Atlanta on July 13th-14th. Of the 71 PC members 4 could not attend due to last minute, unforeseen circumstances. We are grateful to PC members who came from all over the world, often just for this meeting. A total of 120 papers came up for discussion at the PC meeting including a short presentation of the 30 papers that were accepted during the online discussion. PC members had the option of rescuing any papers for discussion at the PC meeting.

In preparation for the PC meeting papers were grouped into categories based first on overall post-rebuttal merit. Ties were broken with a ranking function using weighted expertise. The baseline decision process for each paper discussed at the PC meeting was a 2-step process. After the presentations by the reviewers and any discussions between the reviewers and PC members, the reviewers voted. Unanimous decisions were final. If reviewers could not agree, the decision went to a PC-wide vote where at least half the committee members had to vote (otherwise extend the discussion and re-vote).

Major elements of the PC meeting are listed below.

- The 30 papers tagged as online accept were presented at the end of Day 1. These are papers unanimously accepted by the reviewers online. Each discussion lead presented a summary of their paper. The goal was to inform the committee and provide an opportunity for a PC member to raise any concerns. This was the case for one paper. We reassembled the reviewers to address the concern and the paper was discussed in the PC meeting on day 2.
- Approximately 40% of the remaining top papers were discussed in rank order. PC members had the option of bringing up any paper for a PC discussion and vote, i.e., inclusion in this group.
- PC-wide voting was electronic using HotCRP’s built in voting support. Voting was anonymous.
- Author names were not revealed during the presentations and discussions.

Shepherding
The PC identified 8 papers to be shepherded to correct or improve facets of the paper. Acceptance was at the discretion of the shepherd representing the reviewers. We are happy to note all the shepherded papers were accepted. We are thankful for the efforts of the shepherds who took the time to advise on revisions, representing all reviewers, and taking the time to review and finally accept the final versions.

ACM Student Research Symposium (SRC)
This year for the first time MICRO hosts an ACM Student Research Competition (SRC). Professor Guru Prasadh V. Venkataramani served as the Selection Committee Chair and was responsible organizing all of the related activities and managing the process. We greatly appreciate his proactive efforts in expanding the scope of MICRO activities to include this important engagement of students in our community.

Acknowledgements
The final program reflects the sustained effort of many people that both guided and informed the PC activities. Our efforts were a reflection of their thoughtful inputs, experience, and efforts.

- We are grateful to the Steering Committee for this honor and entrusting us to manage this process. In particular, the Chairs Onur Mutlu and Scott Mahlke were always available and provided valuable guidance starting from the PC formation stage to the finalization of the program.
- The Program Committee shoulder a tremendous review load and tight schedule with nary a complaint. They carried this spirit through the PC meeting with a constructive attitude and a clear desire to ensure diligent and fair evaluation process. They were joined by 24 External Reviewers who participated in the two round review process and online processes and unselfishly gave of their time and effort in doing so. The shepherds also unselfishly gave of additional time and effort. All of these colleagues deserve the credit for a forging a great program!
- Program Committee members James Hoe, Gabe Loh, Pradip Bose, Lieven Eeckhout, Yuan Xie, and Rajiv Gupta served to handle the 55 conflict papers of the PC Chairs. They handled review assignments, shepherded online discussions and ran the PC meeting discussions. All of this over and above their considerable
reviewing load. We cannot thank them enough for taking on this additional responsibility and the diligence, time, and effort with which they did so.

- We owe a tremendous thanks to the submission chairs, Ramyad Hadidi and Bahar Asgari for their tireless management of the submission, review, and finalization processes, as well as HotCRP management. This included successive updates to HotCRP and management of communication with authors and PC members. The demands were continual and they were exceptional in meeting them.
- We are thankful to last year’s PC Chairs Daniel Sanchez and Joel Emer for their advice, sharing of information, implementations, experiences and opinions. It made many elements of the process easier and smoother.
- We are thankful to the Organizing Committee, particularly Mark Oskin, Koji Inoue, Masaaki Konda, and Takatsugu Ono. They were most helpful with their advice on the program organization, recruiting keynote speakers, and addressing the financial issues in conducting the PC meeting. The organizing committee has also done a wonderful job in coordinating all aspects of MICRO 51.
- Moinuddin Moin Qureshi has been most generous with his time and advice from the perspective as the PC Chair of MICRO 48. His insights were valuable in shaping many elements of our process.
- We are grateful to Babak Falsafi for his insights, suggestions, and implementations. As Program Chair for ISCA 45 (2018), he was particularly forthcoming with his perspectives, sharing of information, and was always immediately responsive to our queries.
- We would like to thank our student volunteers, Hyojong Kim and Fares Elsabbagh for their efforts leading up and including the PC meeting. The meeting could not have productively progressed and ended on time without their help.

It has been an honor serving as the Chairs of this year’s Program Committee and representing the tireless efforts of so many people. We would encourage feedback, especially critique from our colleagues on improvements which we will document for the Steering Committee and future PC Chairs. Our community continues grow and will be faced with the challenges of scaling current processes to meet the demand and sustain the quality of MICRO. We have no doubt our community welcomes the challenge and will be successful in continuing to grow it.

**Hyesoon Kim and Sudhakar Yalamanchili**
MICRO 51 Program Co-Chairs