

Message from the Program Chair

I am delighted to present you the technical program for Micro-45. This year's program consists of 40 technical papers and two keynote speeches. In addition to appearing in the mostly-online proceedings, the papers will be presented in three different forms during the conference: as a 100-second key idea presentation during the opening lightning (or, teaser) session, a full 25-minute length presentation during paper sessions, and as a poster in the poster session. We hope this format will allow the benefits of having parallel sessions while giving the authors an opportunity to reach out to most of the Micro attendees during the lightning and poster sessions, and allowing the attendees to delve into the presented works at different levels of depth.

The 40 papers you will be exposed to were selected from the 228 paper submissions. The Program Committee (PC), consisting of 44 distinguished experts, made this selection, closely aided by an External Review Committee (ERC) of 106 additional experts active in our field. Additional external reviewers aided both committees. In total, 248 reviewers wrote 1325 reviews, 815 of which were written by the Program Committee members. The average number of reviews per paper was 5.8. 216 submissions received at least 5 reviews, 159 received at least 6 reviews, and 44 received at least 7 reviews. I myself assigned all reviewers for each paper after careful examination of the paper, except for those 29 I had a conflict-of-interest with. The review process of the 26 submissions I had a conflict-of-interest with were completely handled by Scott Mahlke, and that of the 3 submissions both Scott and I had a conflict-of-interest with were completely handled by Derek Chiou. I thank both of them for their dedicated service.

The authors were given a chance to respond to the initial evaluations of the reviewers via the rebuttal process. After the rebuttal period ended on August 16, 2012, all reviewers were asked to revise their evaluations (both numerical scores and written comments) for each paper, taking into account the author response. Extensive online discussions and review revisions occurred during the 10 days before the PC meeting. At least 160 of the submissions were discussed online. External reviewers were fully involved in the entire review and discussion process leading up to the PC meeting. I requested additional expert reviews after rebuttal for some submissions where there were differences of opinion among the reviewers.

The Program Committee met for 1.5 days on August 25-26, 2012 at the Hilton Chicago O'Hare Airport to make the final selection of papers. All PC members were present for the entire first day of the meeting, and 42 out of the 44 members were present on the second day. In total, 82 submissions were discussed during the meeting, in a rank order of overall merit score that takes into account both pre-rebuttal and post-rebuttal overall merit scores of each reviewer, weighted by the reviewer's expertise and generosity, which I intend to disclose in another document. Any PC member who did not have a conflict-of-interest with a paper or an external reviewer who reviewed the paper had the choice to request the discussion of a submission during the meeting. Several controversial submissions received extensive discussions during the meeting, which was facilitated by the multi-day nature of the meeting. I sought consensus across the *entire PC* to make a decision for each paper, and resorted to a full vote across the *entire PC* to make the accept/reject decision only in cases where consensus was not reached. I am very grateful for the hard work, professionalism, fairness, and thorough reviews of the PC members during, before and after the PC meeting.

After the accept/reject decisions were made, with the help of the PC members, I assembled summary statements that provide a summary of the PC discussion for most of the papers that were discussed but rejected in the PC meeting. I hope this information provided more transparency to the PC discussion process and would be useful for the authors in improving their research.

Each accepted paper was shepherded by one PC member between September 20 and November 5, 2012. The authors of each paper provided the shepherd with a "summary of changes" document describing how

they would address the reviewer feedback. The shepherd PC member assembled and conveyed the feedback of the PC and the reviewers to the authors, and aided the authors in improving the paper.

This year, we introduced several new and different aspects into both the submission and review process as well as the final program. The main goals were to improve: 1) the quality of the decisions during the paper selection process, 2) the transparency of the paper selection process, 3) the level of involvement of the external reviewers in the selection process, 4) the authors' ability to respond to initial reviewer evaluations and potential questions that may come up after the rebuttal process, 5) the quality of the final program, and 6) the quality of interactions during the conference, especially in the presence of parallel sessions. I intend to describe the reasoning behind these new and different aspects, and detail the feedback we received on them in a longer experience report separately. Here, I briefly list some of them:

- The submission format of the papers was made the same as the final format to, most importantly, improve the fairness of paper selection process and to begin an attempt to standardize the submission format of Micro and other architecture conferences. I am delighted to see that this format was improved and adopted for the purposes of HPCA 2013 and ISCA 2013 submissions.
- The authors were given the option to upload an appendix in addition to the submission. Reviewers were not required to read the appendix; some of them did. An important purpose was to give the authors a chance to anticipate potential detail questions and satisfy the curiosity of the reviewers who wanted to dig deeper.
- The authors were given the option to upload a document summarizing any past reviews they may have received for a previous version of the submission, if any, to a past venue, along with a description of how they addressed those reviews. The purpose was to give the authors a chance to proactively address potential concerns that might appear after the rebuttal period.
- The Program Committee meeting spanned 1.5 days instead of the conventional 1-day meeting. This allowed the committee to deliberate more and reduced the pressure on the committee for making hasty decisions.
- An External Review Committee was employed to aid the Program Committee by augmenting the expertise of the PC members. ERC members committed to reviewing 3-6 submissions before the conference. Some ERC members reviewed as many as 7 submissions.
- All external reviewers were involved in the paper selection process, before and after the rebuttal until up to the Program Committee meeting. External reviewers were allowed to see rebuttals and other reviews, discuss the paper with other reviewers, and update their scores and reviews based on the rebuttal and the discussion.
- The rebuttal process was made more transparent to the authors. All initial numerical scores of reviewers were exposed to the authors during the rebuttal process. The review form explicitly allowed the reviewers to specify the three most important specific questions to be answered by the authors.
- The reviewers were required to read the author rebuttals and revise their reviews accordingly. They were asked to include "post-rebuttal comments" in their revised reviews. A large majority of reviewers updated their reviews as part of this process.
- Summary statements were provided to the authors of many rejected papers, if the paper was discussed during the PC meeting, describing the key points of the PC discussion of the paper.
- All accepted papers were shepherded to improve quality.
- A single-track lightning session will be the opening session of the conference (after the first keynote) to enable authors to get across key ideas of their papers to most of the conference attendees.
- A poster session will take place on the second day of the conference to enable the authors to discuss their work with the attendees and enable the attendees to have a technical networking session.

Clearly, this entire process has only been possible with the continuous hard work and participation of the Program Committee members, External Review Committee members, and the external reviewers who aided the PC and the ERC. I thank them gratefully. I especially thank the PC members who, in addition to thoroughly reviewing papers, caringly and diligently shepherded the accepted papers – I know the hard work they put in for this effort, as I was CC'ed in most of the correspondence between the authors and the shepherds. Special thanks to Scott Mahlke, who coordinated the review process of a considerably large number of (26) papers I had conflict-of-interest with.

Vivek Seshadri, the head Micro-45 submissions and web chair, was a key enabler of the entire submission and review process, as he tremendously helped with all aspects of it. Without his extensive help in running the submissions and review website, preparations for the PC meeting, and attendance, assistance and note-taking during the PC meeting, none of the above would have been easily possible. I would also like to thank two of my other PhD students, Chris Fallin and Justin Meza, who worked hard as the other submissions and web chairs.

I would like to especially thank Rich Belgard, Yale Patt, Tom Conte, and Wen-mei Hwu, who provided valuable advice in all steps and were always available. Many thanks to the other Steering Committee members, David Albonesi, Kemal Ebcioğlu, Paolo Faroboschi, Scott Mahlke, Margaret Martonosi, Bill Mangione-Smith, and Milos Prvulovic for being helpful when needed and supportive. I am very much grateful to Pradip Bose, Ronny Ronen and Ben Zorn, whom I consulted with on many issues. Last year's Program Co-chairs, Andreas Moshovos and Milos Prvulovic, and the 2010 Program Chair Sanjay Patel provided feedback on their recent experience along with useful documents. Doug Burger, James Hoe, Trevor Mudge, Jim Smith, Guri Sohi, Per Stenstrom, and Chris Wilkerson also provided valuable feedback and opinions at various points in time, and I thank them for that. I am also very thankful to the General Chair Steve Melvin for being supportive and acting as a sounding board.

Finally, I would like to thank our keynote speakers, Charles Webb and Turner Whitted, for accepting my invitation, the Publications Chair Ben Lee and the Registration Chair Arrvindh Shriraman for putting up with my requests, and Laura McGee and Can Alkan for their help with meeting organization and the conference website.

The technical program of Micro-45 reflects a strong and thriving community effort, shaped by literally hundreds of contributors, including especially the submitting authors, PC and ERC members, external reviewers, invited speakers, and others acknowledged above (and yet others I may have unintentionally forgotten to acknowledge) whom have directly or indirectly affected the process. I would like to thank especially the submitting authors for the strong and diverse submissions that have allowed the review committees to choose from a strong set of technical papers.

I hope you enjoy Micro-45, and are looking forward to the technical program as much as I am. It was an honor for me to serve as the Program Chair. I would very much welcome any feedback you may have on anything related to Micro-45, especially on the new things we tried this year.

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