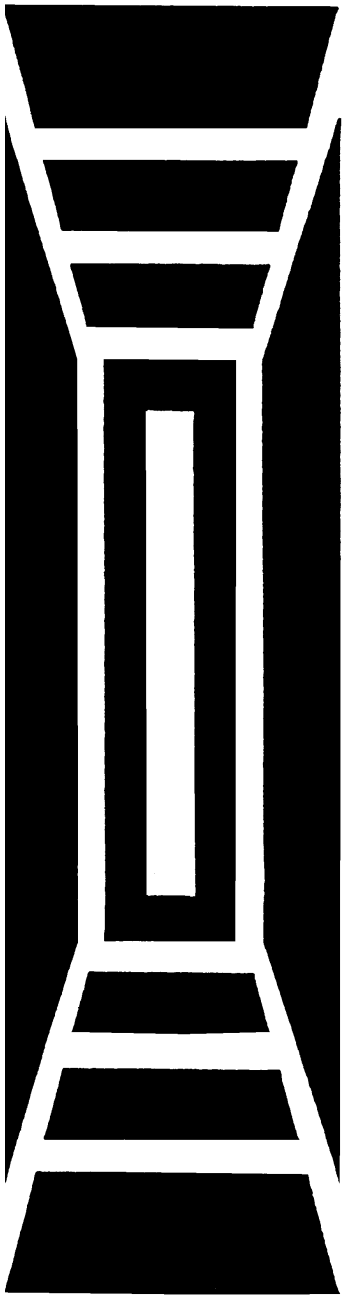
ASPLOS XX

Twentieth International Conference on Architectural Support for Programming Languages and Operating Systems



March 14–18, 2015

Istanbul, Turkey

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ASPLOS 2015 General Chairs' Welcome

On behalf of the ASPLOS organizing committee, we are very pleased to welcome you to Istanbul, Turkey, for the 20th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS-XX) on March 14-18, 2015. Istanbul is a jewel of a city, with its unique historical accumulation and splendid natural beauty, blended into a modern metropolis. Each civilization that has made Istanbul its home has left its mark in sublime and splendid ways, and the result is a city that gives one the feeling of universal history at every step from the Roman era to the Byzantine and Ottoman eras.

Visitors will enjoy a wide variety of activities in a city where two continents meet on the blue waters of the Bosphorus to offer an abundance of unique natural, historical, cultural, and culinary experiences. Many of the historical sites including the Blue Mosque, Hagia (St.) Sophia, Hippodrome, Grand Covered Bazaar, Obelisk of Theodosius, Serpentine Column, The Maiden's Tower, Galata, and Basilica Cistern will be explored as part of our social activity. The conference banquet will be held at the Bosphorus, where we will enjoy a view of many historic places in Asia and Europe simultaneously.

ASPLOS has been the best place to share and exchange innovative ideas regarding integrative research comprising computer architecture, programming languages, and operating systems. This year is no different thanks to the organizing committee, reviewers, contributing authors, and particularly the program committee and the chair, Sandhya Dwarkadas. She and the program committee did a great job in selecting an extremely interesting program. Several exciting workshops and tutorials will also be part of the conference. This year, we created a new ASPLOS-ACM Student Research Competition (SRC) sponsored by ACM and Microsoft Research. ASPLOS-ACM SRC is a forum for undergraduates and graduate students to share their research results, exchange ideas, and improve their communication skills while competing for prizes. We would like to thank all members of the organizing committee and steering committee as well as the technical program committee and the external reviewers.

We would also like to thank the corporate supporters of ASPLOS who have provided generous financial support: VMware and Intel – our primary supporter this year, Google, ARM, Oracle, Microsoft Research, Facebook, IBM Research, and HP Labs. Our thanks also go to ACM SIGARCH, ACM SIGOPS, ACM SIGPLAN, and the National Science Foundation for providing funding for the student grants.

We hope you find the program exciting as we have a packed program with 48 technical papers, lightning and poster sessions, a banquet, business meeting, two keynotes, a WACI session, and potentially a debate/panel. We hope this provides a stimulating platform and you enjoy staying in Istanbul.

Let us meet where continents meet!

Ozcan Ozturk
ASPLOS 2015 General co-Chair
Bilkent University

Kemal Ebcioglu
ASPLOS 2015 General co-Chair
Global Supercomputing

ASPLOS 2015 Program Chair's Message

It is my pleasure and privilege to serve as program chair for ASPLOS 2015 - the Twentieth International Conference on Architectural Support for Programming Languages and Operating Systems. This year's conference has set new records in terms of the number of submissions, and reinforces ASPLOS's tradition of encouraging work on innovative multidisciplinary research spanning computer architecture and hardware, programming languages and compilers, operating systems and networking, and applications.

The 2015 conference saw a record 287 submissions (compared to 217 in 2014, an increase of 32%), with a total of 1,018 paper authors from 287 institutions spread across at least 22 countries and spanning 5 continents: a clear indication that our community is growing, and that ASPLOS is the premier venue of choice for disseminating high quality interdisciplinary work.

There was a wide diversity in topics, ranging from quantum computing to human computer interaction, with the most popular being scheduling and resource management, memory systems, power/energy/thermal management, and multicore and heterogeneous architectures. 97 papers self-identified as relating to architecture, 72 to parallelism, 70 to operating systems, 51 to programming models and languages, and 34 to compiler optimizations.

Some Notes on the Review Process: All reviewing and discussion, including that at the PC meeting, was double blind. As in past ASPLOS conferences, I used a 2-phase review process, with each paper receiving 3 reviews in round 1, and a minimum of an additional 2 reviews in round 2. In order to improve the quality of review assignment, in conjunction with the paper title and abstract (with sometimes a need to skim the paper directly), I used a combination of topic and interest match with reviewers, and suggestions for reviewers from both the authors and the round 1 reviewers (during the round 2 assignment).

I continued to monitor reviews for papers through both rounds 1 and 2 as they came in for quality, substance, and tone, to correct any expertise mismatch, and to find experts in the multiple areas each paper might span, including experts outside of the program and external review committees, a step that is essential for a conference with the breadth that ASPLOS covers. Reviewer feedback in this process was extremely helpful.

In keeping with ASPLOS'14 and other conferences, not all papers were moved to round 2. In particular, papers with no round 1 reviews advocating acceptance, and with clear consensus (based both on substantive review content and comment exchange) among the reviewers that the paper did not rise above the acceptance bar for the conference, did not move to round 2. Approximately 35% of the papers fell in this category. Each of these decisions involved the active participation of all the reviewers.

After the rebuttal phase, each paper was assigned a discussion lead. The discussion lead's job was to carefully read all reviews, the rebuttal, and prior online comments (several papers had extensive online discussions after both rounds 1 and 2), and then initiate a discussion with the goal of reaching a conclusion on whether papers were to be accepted, rejected, or discussed at the PC meeting. The goal of the discussion lead (and my monitoring) was to ensure that every reviewer participated in the discussion after reading the other reviews and the rebuttal. During this process, if new reviewers were considered required based on the rebuttal content, they were sought.

The program committee meeting was held at the Chicago O'Hare Hilton on November 7th, 2014. All but two PC members were in attendance, both due to medical emergencies. PC members had access to the reviews for all papers for which they had no declared conflict. Paper authors were not revealed during the PC meeting, and since the discussion continued to be blind, PC papers were not singled out for separate discussion. PC members were asked to leave the room for papers for which they were declared as a conflict (which included any papers they were authors on) prior to revealing the paper title and number being discussed.

During the PC meeting, all papers categorized as a preliminary accept (15) were discussed first. The PC also had a chance during and prior to the PC meeting to bring up papers for discussion that were classified as tentatively rejected (i.e., all papers were open for discussion at the PC meeting). The majority of the time during the PC meeting was spent on the papers categorized as needing discussion. The result of the extensive reviewing, online discussion, and PC meeting is now in your hands for your reading pleasure, with 48 accepted papers, 16 of which were shepherded. In addition to the decision process, for every paper where the authors chose to provide a rebuttal, the discussion lead, in collaboration with the other reviewers, provided the authors with a summary outlining the main criteria leading to the decision outcome for the paper (whether or not the rebuttal answered reviewer questions or addressed concerns or shortcomings expressed in the reviews), along with feedback for improvement.

The Program: In addition to the 48 accepted papers, the conference includes two invited keynote speeches. Edward Lee from the University of California at Berkeley will talk about incorporating time into the semantics of programs in support of cyber-physical systems. Guruduth Banavar from IBM will give a talk on the capabilities of and the challenges in realizing cognitive computing. We will maintain the tradition of past ASPLOS conferences in convening a Wild and Crazy Ideas (WACI) session, organized by John Criswell, Arrvindh Shriraman, and Emmett Witchel. Lightning sessions each morning will provide a quick introduction to the key ideas that will be presented in the talks that day. New this year is the ASPLOS-ACM Student Research Competition, which will allow a showcase for student research via poster presentations during the poster session.

Acknowledgements: A big thank you to my 35 program committee members and 68 external review committee members for their hard work and for gracefully handling the extra review load from the unanticipated large increase in the number of papers (up to 23 papers were reviewed by each PC member, and up to 9 papers reviewed by each ERC member, for a total of 1,223 reviews). Thanks also to the 36 outside reviewers who provided additional expert opinions. Andrew Chien handled my conflicts, assigning reviewers to these papers and monitoring both online and PC meeting discussion. John Carter was my double checker in tracking paper outcomes during the PC meeting and allowed me to retain my sanity toward the end of the day. Thanks to Eddie Kohler, HotCRP's author, for the quick follow up to my questions and on fixes for my occasional bug reports; HotCRP and its coloring and tracking features were extremely useful through the review process. Dave Costello, technical staff member here at the University of Rochester, made installing HotCRP a cinch, making himself available at all times to analyze any performance issues and to ensure that the server had no hiccups through the submission and review process. My students Xiaowan Dong and Sharanyan Srikanthan were a tremendous help in tailoring the HotCRP php scripts to my needs. A special thank you to Xiaowan for her attention to detail and her patience in generating summary statistics as I asked for them.

I follow in the footsteps of past PC chairs, with particular thanks to Sarita Adve for establishing a solid review process and for including me in the 2014 ASPLOS program committee so that I was ready and thinking about 2015. The steering committee provided valuable guidance on interpreting and setting policies. The organizing committee and the general chairs, Ozcan Ozturk and Kemal Ebcioglu, deserve special thanks for taking care of all the logistics and allowing me to focus on the technical program, and for bringing us together for the conference at such a spectacular venue.

Last, but not least, thanks to the 1,018 authors of the submitted papers for sending their work in to ASPLOS. I hope you enjoy reading the papers in these proceedings and continue to submit your interdisciplinary work to ASPLOS. The conference provides a unique opportunity for stimulating interaction with experts across a diverse range of subdisciplines and I look forward to seeing many of you at the conference.

Sandhya Dwarkadas
ASPLOS 2015 Program Chair
University of Rochester

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