

Ten Years of Top Picks

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..... This issue marks our tenth anniversary edition of Top Picks articles from the major microarchitecture-related conferences, a tradition started in 2003 by Pradip Bose at the start of his tenure as Editor in Chief, and an issue that I think has only grown in importance in the intervening years.

Over the years, Top Picks published many great articles. This year's edition contains 11 more, and I thank Babak Falsafi and Gabriel H. Loh for their excellent work in putting this issue together—from recruiting an outstanding program committee to maintaining a clear and fair process to keeping the issue on time. I also thank the authors of the 78 submissions, even though the high quality made the program committee's work ever the more challenging.

Since this issue marks a tenth anniversary, I think it is interesting to compare the set of articles selected for this year's issue versus those published in 2003. In their Guest Editors' Introduction, Babak and Gabe group this year's articles in three categories: energy and efficiency, safety and security, and parallelism and memory. However, to compare to 2003, Table 1 shows a slightly finer set of categories with article count breakdowns in 2003 and 2013.

Note that there were 15 articles in 2003 and 11 this year. Some articles fall in multiple categories, so the counts in Table 1 do not sum to the total number of articles.

Table 1. Breakdown of articles selected for the special issue.

Topics	2003	2013
Parallelism	4	2
Transactions	1	0
Fault tolerance	2	1
Simulation	1	0
Caches and memory	2	3
Single-core performance	2	1
Program analysis	1	0
Power and energy	2	3
Accelerators	0	2
Security	0	3

I think a few broad trends are discernible: energy stays important, accelerators and security increase, single-core performance decreases, and parallelism extraction decreases. This last trend seems surprising given the continuing importance and work on this topic, and I think likely represents a statistical anomaly given the small sample size of articles.

Importantly, 2003 had pioneering articles in many areas that have been key to progress over the last 10 years—topics from dynamic voltage and frequency scaling to temperature-aware computing to transactions to architectural vulnerability factors, and many more. I think that the articles in this year's issue are similarly farsighted in leading the way on security, approximate computing, computational sprinting,

managing datacenter load in an energy-efficient manner, GPUs, and memory management. The Guest Editors' Introduction has a more complete rundown, and of course, please read the full papers.

Happy reading!

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