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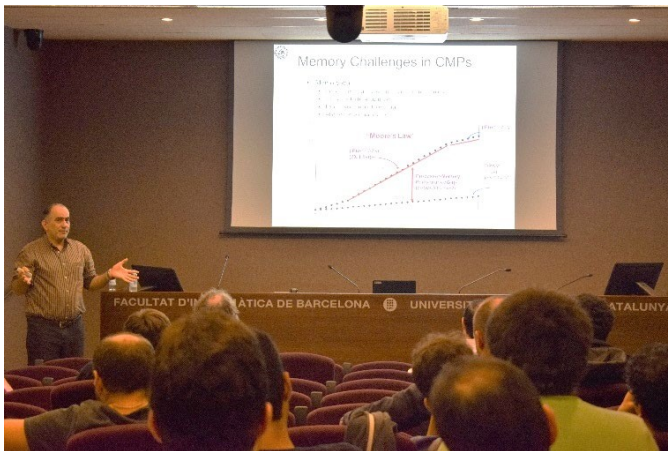
Designing Endurable Phase-Change Memories: Balancing Bit Flips and Exploiting Multi-Level Storage Capability

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Abstract

In this talk, I will discuss alternative non-volatile memory technologies and present one of our recent works on prolonging the lifetime of Phase-change main memories. One of the main drawbacks with PCMs is their short write endurance. In this talk, I will introduce a simple shift-based technique to balance the bit flips of memory lines and also exploit multi-bit storage capability of PCMs to improve the lifetime of the whole memory.



Short bio

Prof. Hamid Sarbazi-Azad received his BSc in electrical and computer engineering his MSc in computer engineering from Sharif University of Technology, Tehran, Iran in 1992 and 1994, respectively. He did his

PhD in computing science at the University of Glasgow, Glasgow, UK, in 2002. Currently, he is a Professor of computer engineering at Sharif University of Technology, Tehran, Iran and the head of the School of Computer Science, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran. His research interests include high-performance computer architectures, supercomputing architectures (he built the first Iranian TFLOPS supercomputer in 2007), and memory/storage systems. He received the Khwarizmi International Award in 2006, a TWAS Young Scientist Award in engineering sciences in 2007, and Sharif University Distinguished Researcher awards in 2004, 2007, 2008, 2010 and 2013. Prof. Sarbazi-Azad has served as Associate editor for ACM Computing Surveys (2015-now), Associate editor for IEEE Transactions on Computers (2012-2016), and Editorial board member for Elsevier's Computers & Electrical Engineering journal (2012-now).