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Potential of New Memory Technologies Explored at UC San Diego Workshop



2012 Non-Volatile Memories Workshop
March 4 - 6, 2012

The impact and future of non-volatile, solid-state memories that help power today's electronic mobile devices will be the focus of a three-day workshop held March 4 to 6 at the University of California, San Diego.

The Jacobs School of Engineering at UC San Diego will host the third annual Non-Volatile Memories Workshop, to examine the uses and developments of technologies that are shaping the future of high-performance and "cloud" computing.

"These memories have the potential to revolutionize how computers store and access data, but they are so different from conventional disk-based storage systems that they really send us back to the drawing board. This workshop focuses attention on the remaining technical hurdles that stand in the way of realizing their potential," said Steven Swanson, a professor of computer science at the Jacobs School of Engineering and one of the workshop's organizers. "We need to get everyone in the same room talking about these problems so these memories can realize their full potential to enable new applications."

Swanson and colleagues have recently been in the spotlight for a study showing that users and manufacturers of solid state drives will face tough choices in trading off between cost, performance, capacity and reliability. That's because while flash density continues to improve, its reliability, endurance and performance are all declining. The technology could hit a wall as early as 2024, the study said.

The workshop will feature 33 technical presentations by leading researchers from the United States, Singapore, Israel and Japan on March 5 and 6. The event will feature two keynotes: the first, on March 5, will feature Richard L. Coulson, senior fellow and director of the Storage

Technologies Group at Intel. The second, on March 6, will be from Christophe Chevallier, vice president of the NVM/Storage division of Rambus. Steven R. Hetzler, manager of Storage Architecture Research at IBM and an IBM Fellow will give a tutorial on March 4 covering system design issues for solid state storage.

This year, attendance is expected to top 200 as more and more companies and research groups focus their efforts on leveraging these new memory technologies. “The workshop fosters active discussion among researchers spanning all layers of the storage system stack. Device physics, error-correction coding, system architecture and innovative applications are all represented in the technical program,” said Paul Siegel, another workshop co-organizer and professor of electrical engineering at the Jacobs School. Participants hail from industry, academia and national research labs. About a third of them are graduate students, many of whom receive travel assistance.

“We encourage student involvement,” said Siegel. “After all, the future of these technologies will rely to a large extent upon their creative ideas.”

The workshop is a co-production of the Center for Magnetic Recording Research (<http://cmrr.ucsd.edu>), the Non-Volatile Systems Laboratory (<http://nvsl.ucsd.edu>) and the UC San Diego branch of Calit2 (<http://calit2.net>). The workshop also enjoys the support of the National Science Foundation, Samsung, STEC, Western Digital, Fusion-IO, Hewlett-Packard, IBM Research, LSI, Marvell and Microsoft Research.

More information, including a detailed program is available at <http://nvmw.ucsd.edu/2012>

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