

# Welcome

## Seminar Series of the Department of Computer Science Electrical Engineering Presents

### Flash Memory Database Systems: Challenges and Opportunities

April 4, 2008. Time 2:00-3:00 PM. FH 302.



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#### **Abstract**

Due to its superiority such as lower access latency, low energy consumption, lighter weight, and better shock resistance, the success of flash memory as a storage alternative for mobile computing devices has been steadily expanded into personal computer and enterprise server markets with ever increasing capacity of its storage. As its capacity increases and price drops, flash memory will compete more successfully with magnetic disk drives. It is thus not inconceivable to consider running a full database system on the flash-only computing platforms or running an embedded database system on the lightweight computing devices. However, since flash memory exhibits poor performance for small-to-moderate sized writes requested in a random order, existing database systems may not be able to take full advantage of flash memory without elaborate flash-aware data structures and algorithms.

In this talk, we present a new design called in-page logging (IPL) for flash memory based database servers. This new design overcomes the limitations of flash memory such as high write latency, and exploits unique characteristics of flash memory to achieve the best attainable performance for flash-based database servers. We will also discuss the applicability and potential impact that flash memory SSD (Solid State Drive) has for certain type of storage spaces of a database server where sequential writes and random reads are prevalent.

**Bio:** Bongki Moon is an Associate Professor of Computer Science at the University of Arizona. He received his PhD degree in Computer Science from University of Maryland, College Park, in 1996, and his MS and BS degrees in Computer Engineering from Seoul National University, Korea, in 1985 and 1983, respectively. His current research areas of interest are XML indexing and query processing, information streaming and dissemination, and Flash-based high performance database servers. He currently serves on the editorial board of IEEE Transactions on Knowledge and Data Engineering (TKDE) as an associate editor. He is a recipient of the NSF CAREER Award.