



## PROCESSING AT VARIOUS LEVELS OF MEMORY HIERARCHY

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**ABSTRACT:** Near-data processing is to process data near the memory where the data reside. The main goal is to save time and energy for data movement. The basic concept is not new; there were many attempts to realize it in 1990s, but they were unsuccessful at that time. Recently, the concept is reviving as a promising solution to the memory wall crisis in the big data era.

This talk presents various ways of exploiting the concept of near-data processing. In particular, it presents what kind of specific approaches can be used depending on where in the memory hierarchy the data can be processed most efficiently. Possible applications include high performance computing, big data/graph processing, and deep neural networks.

**BIOGRAPHY:** Kiyoung Choi received B.S., M.S., and Ph.D. degrees, all in EE, from Seoul National University, KAIST, and Stanford University, respectively. He worked for LG from 1978 to 1983 and for Cadence Design Systems from 1989 to 1991. In 1991, he moved to the Department of Electrical and Computer Engineering at Seoul National University, where he is now a professor. He is also the director of Neural Processing Research Center at Seoul National University. His primary research interests are in electronic design automation, computer architecture, and machine learning. He is a Fellow of IEEE.