

MSc STO | INDUSTRY GUEST LECTURE SERIES

Breaking the Memory Wall

Memory & Storage in the Age of AI

19 October 2026 | 6:00–9:00 PM | LT3

Mr. Ramanathan Gandhi (Ram)

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NAND Technology & Integration (NTI), Micron, Singapore



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AI is fundamentally a data problem — and memory sits at its center

ABOUT THE TALK

This lecture introduces the fundamentals behind the memory hierarchy, including Von Neumann architecture, locality principles, DRAM, and 3D NAND device physics. It explains why no single memory can be fast, dense, and cheap at the same time – and how this creates the defining bottleneck of the AI era: moving data now costs far more energy than computing with it.

The session concludes with how High Bandwidth Memory and advanced 3D NAND work together to keep GPUs fed through AI training and inference.

KEY TOPICS

Memory Hierarchy · Von Neumann Architecture · DRAM · 3D NAND
Memory Wall · Data Movement · High Bandwidth Memory · AI Training & Inference

Mr Ramanathan Gandhi (Ram)

Senior Member of Technical Staff – Micron, Singapore

ABOUT THE SPEAKER

Ramanathan Gandhi (Ram) is a semiconductor technology leader with more than 15 years of industry experience across advanced memory development, energy-efficient CMOS devices, and process integration.

His career began at Chartered Semiconductor Manufacturing as a process engineer. Since 2011, he has contributed to NAND, DRAM, emerging memory, and 3D-access device development at Micron Technology. He is currently leading work on 3D NAND cells, focusing on metal word line parasitics, reliability, and channel mobility improvement.

HIGHLIGHTS

- 15+ years semiconductor industry experience
- 50+ patents filed
- Expertise in NAND, DRAM, emerging memory, and 3D NAND cells
- NUS alumnus — B.Eng and M.Eng in Electrical Engineering

Learn from the people shaping the semiconductor industry