MIM WEBINARS
AN IN-MEMORY COMPUTING SERIES

Next Talk: 21/June/2021, 4-5:30pm CET

DEEP LEARNING ACCELERATION: A KILLER APPLICATION FOR IN-MEMORY COMPUTING?

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The rise of AI and in particular, deep learning (DL), is a key driver for innovations in computing systems. There is a significant effort towards the design of custom ASICs based on reduced precision arithmetic and highly optimized dataflow. However, the need to shuttle millions of synaptic weight values between the memory and processing units, remains unaddressed. In-memory computing (IMC) is an emerging computing paradigm that addresses this challenge of processor-memory dichotomy. Attributes such as synaptic efficacy and plasticity can be implemented in place by exploiting the physical attributes of memory devices such as phase-change memory (PCM). In this talk, I will give a status update on where in-memory computing stands with respect to DL acceleration. How do we tackle imprecision arising from noisy, analog computing? I will present some recent algorithmic as well as device-level innovations. I will also touch upon some system-level aspects and will present a world’s first IMC compute core based on PCM fabricated in 14nm CMOS technology. Finally, I will provide a brief overview of photonic in-memory computing that could facilitate unprecedented latency and compute density.

More information about the event and the speaker:
https://www.ict.tuwien.ac.at/staff/taherinejad/MiM/next.html