Seminar

[MSCE] A Survey on Spiking Neural Networks and Neuromorphic Computing

The main bottleneck in low-power DNN acceleration is data movement between processing elements and memory levels, which accounts for nearly as 70% of the total energy budget, excluding the clock network. In recent years, different computer architectures such as logic-in-memory or brain-inspired computing, have been proposed, overcoming some of the limitations of the Von-Neumann architecture (memory wall), but introducing new problems in the synthesis of such systems. Neuromorphic computing [Loihi, TrueNorth] is a promising approach to achieve high energy efficiency, mixing analog/digital processing elements in VLSI systems. The candidate should investigate the theoretical aspects and applications of neuromorphic computing (digital), focusing on DNN acceleration.

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