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Mathematical Approach of Q-Learning with Temporal Difference Method In Sensor Data Communication In Cloud Environment

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Abstract

The computation capability of the memory related operations which are used in database related procedure seems to be increasingly bound in the recent years. The memory related operations starting from hard disk drive based system to higher bandwidth memory technologies such as in-memory, non-volatile memory etc face consequences. The transition of such with higher bandwidth especially in memory is crucial. One of the solutions for such evolution is hardware acceleration. In general, many types of virtual hardware accelerator are accessible, one such trend is Field Programmable Gate Array (FPGA). FPGA is selected among other accelerator ranging from embedded device to cloud computing because of its higher performance, energy efficiency and adaptability. Hardware acceleration is found least nominal because of communication overhead. But the momentous opening on FPGA design chain connected with memory technology still provides attractive gain in the database field. Some of the areas of FPGA which are still left void in the scale of full deployment of FPGA virtualization are resource management, scalability, and development. To address the acceleration flexibility of FPGA, many of the FPGA virtualization techniques and hardware infrastructures have been proposed on academic as well as industrial side in the recent years. In this research work, an attempt is made to identify and classify the various FPGA database acceleration techniques and approaches. The current trends and developments of the existing literature are highlighted with the future directions to be addressed based on the data movement in database which improve the speed of the memory

Keywords:
FPGA, Hardware Acceleration, Database, In-Memory, Bandwidth

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