Efficient ADC/DAC Designs for RRAM-based Neural Network Accelerators

RRAM-based crossbars shown in Figure 1 are a promising hardware platform to accelerate computations in neural networks. To deploy such crossbars for neural networks in practice, ADCs and DACs are used to convert analog/digital signals into digital/analog signals for further processing. However, existing ADCs and DACs consume a large area and power consumption, which might offset the benefits of analog computing with RRAM crossbars for neural networks. To address this problem, efficient ADC/DAC designs are highly demanded.

In this master thesis, a novel ADC/DAC design will be explored, where RRAM cells are exploited to implement the function of ADC/DAC.

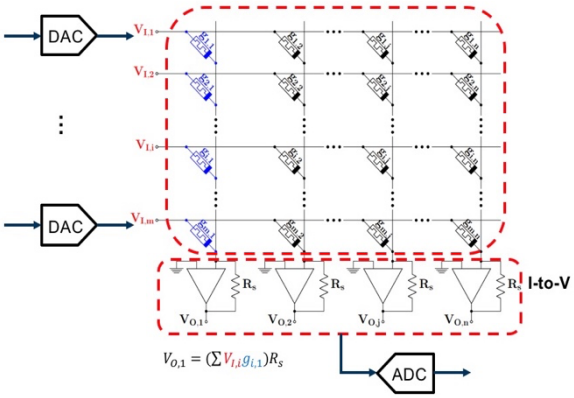

Figure 1: RRAM-based crossbar.

If you are interested in this topic for master thesis, please contact:
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