

# ASIC<sup>2</sup> Project:

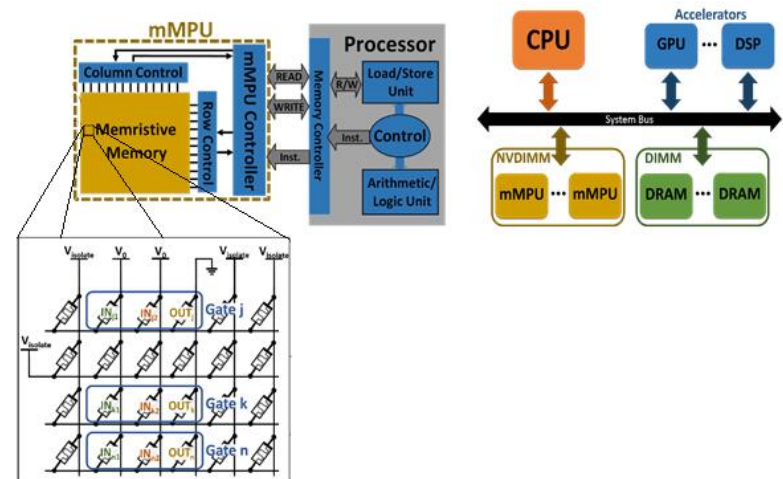
## Advanced Programming and Algorithms for memristive Memory Processing Unit (mMPU)

**Background:** The memristive Memory Processing Unit (mMPU) is a new process-in-memory computer architecture, which performs the computation without moving the data from the computer's main memory (RAM). The logic implementation in the mMPU is based on emerging memory technology of ReRAM (resistive RAM), transpose memory array, and the MAGIC NOR operations, which reveal large vector operations.

In order to benefits from this new processing paradigm, new algorithms need to be developed and existing applications need to be adapted. Those algorithms and applications can be from all areas and subjects: Security, Networking, Image Processing, Neural Networks, Scientific Computation etc.

### Project Description:

1. Acquire knowledge and understanding of the mMPU design and operation.
2. Research on relevant algorithms and applications.
3. Choosing one or more algorithms/functions for hands-on implementation.
4. Evaluate the implementation and comparing to state-of-the-art solutions.



Prerequisites: logic design. computer architecture is an advantage.

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