

Hardware OS chip to translate 'python type AI software' to optimize the PIM(processor in memory) architecture

Generated in 2022 Dec. the 15th

Motivation

- 1) AI GPU/NPU are too expensive not only 'price' but 'power consumption'
- 2) The reason for people to stick to the GPU is simply the people stick to the 'already available software' for AI such as Python.
- 3) Lots of memories are used but with serious memory bottle neck.
- 4) PIM chips(processor in memory) may be a solution, in which the partial MA(multiply adding) operations are performed so the memory data in/out is reduced..
- 5) However, PIM does not fit in the OS which Python relies on. So, PIM itself gives burden as the OS software has to visit PIM and general memory.
- 6) So, special hardware chip should be developed to 'translate' the Python type software (or OS) dedicated to the PIM structure

Expertise

- 1) OS
- 2) Semiconductor chip architect
- 3) Detailed chip designer may not be necessary at the concept design state

To the future young scientist

- Probably high school and freshman level students may like to learn the OS with the specific objectives mentioned above.

- Probably high school and freshman level students may like to learn the semiconductor chip design (high level architecture design/computer architecture) with the specific objectives mentioned above.

Two young brains may be enough with 2-4 years hardwork(like Jeong yoonchan's practice for the piano contest) during the undergraduate level.

- <https://www.youtube.com/watch?v=5IBL1rNyupY>

This millRnft is open to anybody and the idea may be used and extended to IP's to this millRnft owners.