SAFARI

Bachelor's / Master's / Semester Project

Evaluating and Enabling Processing inside Memory

Almost all **data intensive workloads are bottlenecked** in terms of performance and energy by the extensive **data movement between processor and memory**.

We are looking for an enthusiastic student who is hungry for learning and enabling a paradigm shift that can eliminate this data movement bottleneck: **computation inside memory** (i.e., inside where the data resides).

You will be involved in a project that aims to evaluate the benefits of executing data-intensive applications inside **specialized logic in memory** and developing both **mechanisms and simulators** for this purpose.

Requirements

- Outstanding programming skills (C/C++)
- Computer architecture background
- An interest in developing and evaluating new ideas
- Strong work ethic

For **example studies** you may perform please see:

- "Ambit: In-Memory Accelerator for Bulk Bitwise Operations Using Commodity DRAM Technology", MICRO 2017.
- "Accelerating Pointer Chasing in 3D-Stacked Memory: Challenges, Mechanisms, Evaluation", ICCD 2016.
- "LazyPIM: An Efficient Cache Coherence Mechanism for Processing-in-Memory", CAL 2016.
- "A Scalable Processing-in-Memory Accelerator for Parallel Graph Processing", ISCA 2015.
- "PIM-Enabled Instructions: A Low-Overhead, Locality-Aware Processing-in-Memory Architecture", ISCA 2015.

If you are interested, please email:
Professor Onur Mutlu, omutlu@gmail.com and
Dr. Juan Gómez Luna, el1goluj@gmail.com

https://people.inf.ethz.ch/omutlu/
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