**Bachelor's / Master's / Semester Project**

**Designing and Evaluating Energy-Efficient Main Memory**

DRAM-based main memory is used in nearly all computers today, but its energy consumption is becoming a growing concern. DRAM energy utilization now accounts for as much as 40% of the total energy used by a computer.

Our goal is to design new DRAM-based memory architectures that reduce the energy consumption significantly. This requires a principled approach, where we must measure how existing DRAM devices consume energy. Our group has developed a sophisticated energy measurement infrastructure to collect detailed information on DRAM energy usage.

You will be involved with designing and conducting experiments to measure energy consumption using our infrastructure. Based on the data, you will work with other researchers to identify memory operations that consume large amounts of energy, and will design new DRAM architectures that improve the efficiency of these operations.

**Requirements**

- Outstanding programming skills (C/C++)
- Familiarity with FPGA programming and Verilog/RTL design
- Computer architecture background
- An interest in developing and evaluating new ideas
- Strong work ethic

For example studies you may perform please see:


If you are interested, please email:

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