

Variable Scaling for Computing Elements (#3768)

Systems, methods, and computing units to provide for variable scaling of computing elements

Georgia Tech inventors have created various systems, methods, and computing units to provide for variable scaling of computing elements. The invention involves receiving a plurality of computing resource levels and providing one of the plurality of computing resources levels to each of a plurality of computing elements. Each computing element has an associated output – the provided voltage level based upon associated output significance.

Benefits/Advantages

- Less energy consumption
- Energy efficiency
- Improved computational integrity

Potential Commercial Applications

- Computer software development

Background/Context for This Invention

The advancement of automated computation faces a fundamental problem: energy consumption. The most fundamental building block of binary computation is a switch; a device which models the state of a system as “0” or “1”. Each time a computation is performed by a computing unit, the switches transition and store a new state consuming energy and generating heat. Many applications making computations operate under a finite amount of available energy or have a finite limit on the amount of heat that can be dissipated. Thus, improving energy efficiency of computing units while maintaining or improving computational integrity is an industry-wide concern.

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