# Weird Processing Units for New Programming and Applications

Most central processing units available in contemporary computers or mobile devices are based on principles known for decades. Due to this stagnancy of base way of operation, increasing speed and efficiency is met with unnecessary difficulties. This work presents Weird Processing Units, innovative and original processors that can solve certain types of tasks differently and more efficiently.

Weird Processing Units begin with central key idea followed by expansion into full architecture and programming language specification. Architecture properties are tested and verified using the development tools and simulator created according to the speciation. Hardware versions of Weird Processing Unit are implemented on FPGA devices.

Specific architecture named 2DWPU was chosen for presentation, based on positive results from experiments. Complex mathematical calculations and other operations were automatically spread over available cores by the hardware portion of the architecture, increasing efficiency and speed. Furthermore, no programmer effort is required to parallelize the code.

Simulation of simple virtual organisms was implemented on this architecture, where the behavior each one of them was characterized by a set of variables. Proposed architecture automatically scaled the algorithms over varying number of available cores, increasing the speed with additional cores. Describing the behavior via assembly code was simplified as well, allowing for better efficiency when programming.