The Tunnel Vision Syndrome: Massively Delaying Progress

Reiner Hartenstein,

Professor, IEEE fellow, SDPS fellow, FPL fellow,

TU Kaiserslautern, Karlsruhe Institute of Technology (KIT), UnB

Abstract. Not only the multicore dilemma massively reduces programmer productivity and the progress of energy-efficient performance - a critical issue for the long term overall affordability of computing. Because of the Tunnel Vision Syndrome the solutions coming from a few isolated areas, are by far too slow and massively imperfect.

Systolic arrays (SA) have been introduced by a mathematician. His synthesis method was "of course" algebraic, supporting only a few applications and sequencing concepts were "not his job". A decade later we transformed this SA draft into a general purpose machine paradigm which was presented at the 3rd and 8th through 11th ASAP.

The acceptance of our other fundamental idea, Term Rewriting System (TRS) top-down use for microchip design EDA, was delayed by the TRS expert scene: by 30 years!

The R&D landscape requires radically new solutions. We must avoid the reductionist philosophies of most specialized research areas and introduce connected thinking to bridge the gaps between different paradigms and between several abstraction levels. We must urgently rethink all basic assumptions and far-reaching cooperation patterns.

Documentation:

This abstract: http://helios.informatik.uni-kl.de/staff/hartenstein/Reiner-abstract-ASAP-2013.pdf

Full length paper: http://xputer.de/ASAP/ASAP-Generalization.pdf

Presentation: http://asap-conference.org/presentations/Keynotes/REINER-HARTENSTEIN-ASAP-2013.pdf

Award: http://helios.informatik.uni-kl.de/temp/Hall_of_Fame/Dist-Sp-Award.gif

Honorary General Chair: http://xputer.de/ASAP/2013/ASAP-2013/asap-conference.org/conference-committee.html