

Knowledge synthesizing and reusing by cognitive computing

Moving beyond “prescriptive programming” and Von Neumann

By
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Abstract:

There is a strong need to allow various domain experts, ranging from workers to scientists to be able to “can” their expertise for reusability and improvement without the burden of going through programming. So far publications and literatures have been the only vehicles of knowledge transfer... The excellent article (Communication of the ACM, May 2012, Volume 55, Number 5, page 41), “Programming the Global Brain” by Abraham Bernstein, Mark Klein and Thomas W. Malone is “calling to Arms” for a new way of communicating knowledge to this “global brain”.

A new, “show and tell model” might allow people at any education level, to share their own knowledge such as medicinal plants in Africa or Amazon using simplified means such as the unavoidable mobile phone, possibly making decent revenues out of it. Think just about mushrooms, fishes or insects automated recognition but also medical image interpretations and more...

Cognitive computing has been used since 2004 by Nordic fishermen for teaching a “learning vision device” to sort automatically fishes, with a great efficiency with more than fifty operational systems.

“Cognitive computing” blends memory elements and processing elements and will potentially allow “programmatically impaired” domain experts to just “show and tell” a cognitive computer and disseminate the autonomously generated knowledge in “**cognigrams**” for cloning ones knowledge and reusing...

And for sure, there is no way, that this old approach with a revisited implementation (like the mobile rejuvenated the telephone) using best silicon technology, will displace the existing computing model, it will just enrich it, enabling a big leap forward.

This concept is something that, indeed, prestigious companies such as IBM, HP and more are actively pursuing, together with DARPA.

One can anticipate large repositories of “**cognigrams**” in the “Cloud” which then become a “**global brain in the cloud**” if knowledge acquisition/cloning becomes a breeze!

Author short bio: Guy Paillet has developed trainable vision devices based on silicon neural networks since 1993. Prior to that he developed artificial vision applications based on standard algorithms since 1976. In 1988 he teamed with Nobel Prize Laureate Leon N. Cooper, to progress on software learning based on software neural network. He then finds out that the road blocks in artificial intelligence practicality result from the lack of appropriate hardware architecture. Doing so Guy brought a concept that he extrapolated from his experience in supercomputing for energy pattern recognition with the CERN (Carlo Rubbia Noble Prize laureate –Geneva – 1984) to IBM France as an independent partner. IBM and Guy patented jointly the ZISC architecture (Wikipedia: ZISC) and with a team of ten IBM France Researchers developed the first product ZISC36. In 1999 Guy joined forces with Mrs. Anne Menendez who has a long experience in scientific vision to develop new process within General Vision Inc. located in the San Francisco area. It leads them to develop the CM1K (1024 neurons) chip released in 2007 which is now the only available silicon neural chips marketed by CogniMem Technologies Inc. a General Vision subsidiary. A system packing more than 1 million artificial and fully parallel neurons is well on its way and will be released commercially fall 2012.