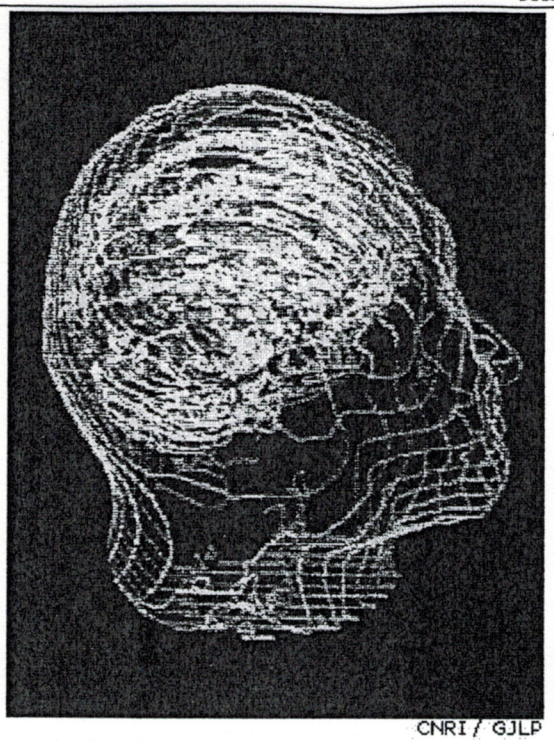
Creativity machine granted a patent

Stephen Thaler claims his artificial intelligence paradigm could render human invention obsolete



CNRI / GJLP

Neural networks mimic the basic workings of the human brain

by Ilsa Godlovitch
MSN NEWS

A PARADIGM for an intelligent machine that could put virtual reality programmers out of a job has been granted a patent by the US patent office. Dr Stephen Thaler with his company Imagination Engines, spent twenty years developing the theory behind the 'creativity machine', a system of neural networks that he claims can surpass human powers of creativity.

"Experimental versions of such systems observe the world, form their own rules about it, and then venture off to create their own discoveries, inventions, and works of art," he says.

Potential applications could cover almost every sphere of human activity. Thaler claims the Creativity machine could be used to design buildings and offices, devise the optimum sports strategy, and maximise profits in cosmetic sales.

More controversially, he claims it could be used to invent new music or paint an original masterpiece. "The future of all artistic creation belongs to human artisans working in concert with Creativity Machines," he says.

Like most forays into artificial intelligence, the idea behind the creativity machine is based on neural networks - a system of connection that mimics the workings the human brain.

Using this method of 'deliberation' the computer can be 'trained' to achieve an increasingly more reliable solution to a problem rather than being programmed on how to respond in minute detail. A multitude of experiments involving neural networks have already been carried out in research and entertainment - the Millennium Interactive game 'Creatures' features digital beings with simple 'brain mechanism'.

But Thaler goes even further with his claims of the capabilities of his artificial intelligence machine. He claims that what he created is in some way conscious with a sense of its own free will.

In Thaler's model, individual nodes, analogous to brain cells are arranged in layers. The user feeds control data into an input layer, and the result emerges in an output layer passing through several 'hidden'

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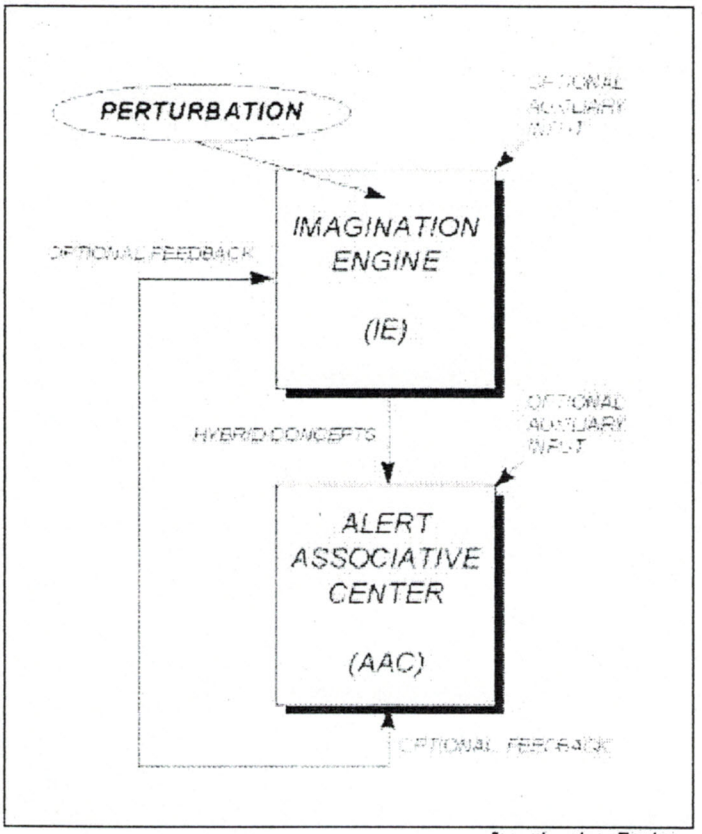
layers in between. The passage of signals from one layer to another are analogous to the firing of brain cells.

A programmer can fine-tune the result by adjusting the strength of a signal's transmission through the network Depending on the strength of the adjustments the Creativity Machine can pass out anything from nearly random combinations to a set-up resembling the original input.



Imagination Engines

"From this patent will emerge a very important lesson: that artificial creativity and consciousness does not spontaneously arise as hardware and software become more complex and extensive. Something else is critically needed before machines can take that final step ... they require a totally unanticipated neurological principle," he says.

Thaler claims he can achieve that final step by connecting two neural nets using a phenomenon which he calls the 'virtual input effect'. While one neural network is released to daydream, another 'alert' partner polices the emerging stream of ideas for anything that looks practically useful. The second network acts as a sort of filter in the 'brainstorming' process weeding out good ideas from bad.

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— STEPHEN THALER
Imagination Engines

Among other uses, Thaler claims that this method enabled the machine to think up 11,000 catchy theme tunes from an inspiration input of just 10 pop songs. Advanced Refractories Technology, a company in Buffalo, New York, apparently paid to use the technology in their development of ultrahard materials and high-temperature superconductors.

The other possibilities are endless. Thaler says. "Five years from now, you're going to have every computer science graduate student writing a creativity program, sometimes for very mundane tasks like how to successfully flirt or how to optimise your wardrobe," he said in an interview with the New Scientist magazine last year.

"Because concept generation results from an internal, high-speed dialog between two neural networks, totally out of the hands of a human operator, we form an autonomous, creative agent," he says.

Thaler hopes that the patent will give his scientific 'breakthrough' more credence in academic circles who have been somewhat sceptical to his claims.

"Such claims in AI ought to be subject to the same scepticism as claims of perpetual motion," Jordan Pollack, a cognitive scientist at Brandeis University in Waltham, told the New Scientist.

Now that the patent has been granted, Thaler is targeting industry, government and academia for a world wide consortium to look into the Creativity Machine Paradigm.

"This collective organization will provide overall guidance to IEI, including the yearly organization of a Creativity Machine conference that will pool all ongoing activity in this extremely exciting and potentially lucrative area," he says.