The US Military Is Working on Tech That Could Turn Soldiers Into Cyborgs

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The US military has announced it will be developing an implantable neural interface that can bridge the divide between the human mind and computers.

The new program, which aims to achieve dramatically enhanced data-transfer connections between the brain and the digital world, falls under the wing of President Obama's BRAIN Initiative (Brain Research through Advancing Innovative Neurotechnologies).

The Defence Advanced Research Projects Agency (DARPA) says that the interface, which it envisions as a bio-compatible device measuring no larger than 1 cubic centimetre, would act as a translator that converts between the "electrochemical language used by neurons in the brain and the ones and zeros that constitute the language of information technology".

The ambitious scheme, called the Neural Engineering System Design (NESD) program, seeks to boost the abilities of existing brain interfaces that can link mind and machine.

"Today's best brain-computer interface systems are like two supercomputers trying to talk to each other using an old 300-baud modem," said project manager Phillip Alvelda. "Imagine what will become possible when we upgrade our tools to really open the channel between the human brain and modern electronics."

While it's easy to imagine that one of those possibilities could be the development of cyborg soldiers with battle capabilities enhanced by digital systems, the potential uses for such a neural interface go far beyond military applications.

According to DARPA, the device could provide a foundation for new health therapies, digitally compensating for "deficits in sight or hearing by feeding digital auditory or visual information into the brain at a resolution and experiential quality far higher than is possible with current technology".

In order to achieve its goal, DARPA says new advancements will need to be made across several fields including neuroscience, synthetic biology, and low-power electronics. There's also the software side of the equation, with new neuro-computation techniques required that can accurately transcode and compress high-definition sensory information between digital hardware and the brain on the fly, and all without significant losses in fidelity.

To make this possible, DARPA is reaching out to researchers and companies around the world for their assistance in creating these kinds of technologies – with the carrot that, in later phases of the program, they'll be able to commercialise aspects of what they've come up with. Yes, you too can be a cyborg in the comfort of your own home (at least one day).

It all sounds very mysterious at the moment, but we don't doubt this program could come up with some very far-reaching discoveries, and hopefully they can be used to benefit people away from the military complex. To see other neuroscience programs DARPA is working on as part of the BRAIN Initiative, check out their page here.