

## MIND CONTROL TO HELP RESTORE ARM FUNCTION FOR PEOPLE WITH PARALYSIS

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It may sound like science fiction, but the development of a second generation brain computer interface (BCI) that can read the minds of people with paralysis in order to control their affected arm is the focus of a Wyss Center supported project.

The aim is to accelerate the development of an implantable BCI that can help restore independence for people with severe paralysis, neurological disease or limb loss.

The work builds on previous successful tests in which a tiny microelectrode array was placed in the brain of people with paralysis to allow their thoughts to control a robot arm. The electrode array detects the intention to move, via electrical activity of neurons in the motor cortex, and relays this to a computer through a wired cable connection. The computer translates the signal into digital commands to control a robotic arm.

“We are now working to miniaturize the implant and to equip it with a wifi connection so that it can be entirely under the skin.” said Professor John Donoghue, Director of the Wyss Center, who originally developed the early BCIs.

The next step is the development and fabrication of a miniature, wireless, rechargeable and fully implantable device that is ready for human clinical use to give those who need it most the opportunity to communicate, interact and function through thought.

The ultimate goal of the project is to develop a device that would allow people to not only control robotic prostheses but directly trigger movement in paralyzed limbs through thought alone.

