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## Peter Ford's Control Bionics key to locked-in syndrome

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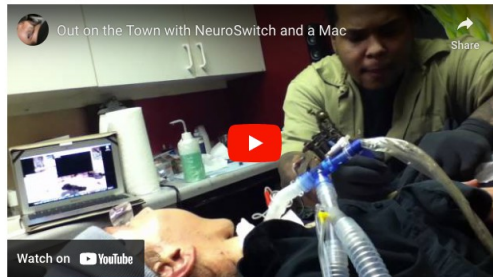
Peter Ford, former Seven newsreader and founder of Control Bionics. Picture: Craig Fordham

Paralysed and unable to speak, Michael Phillips's only means of communicating is by contracting the frontalis muscle on his forehead, which he does admirably, up to nine times a second.

A device developed by an Australian senses that movement and synchronises it with a cursor shining up and down rows of a virtual keyboard on an Apple MacBook screen. A timely muscle twitch sends the cursor along the row, and a second twitch selects the key to be typed.

Phillips, 34, from Tampa, Florida, has a genetic disorder known as Spinal Muscular Atrophy Type 2. But it has not prevented him becoming a [prolific blogger](#). He writes movie reviews, short fiction and opines on life in general.

He writes about his favourite gadgets, such as Apple Watch, and plays computer games. A YouTube video titled "Out on the Town" shows him lunching at a restaurant before buying jewellery and choosing a tattoo.



Phillips's life could have been a communication void if not for technology that monitors his muscle movements with a small sensor attached to the skin, and converts them into computer inputs.

That technology, NeuroSwitch, was developed by Australian Peter Ford, a newsreader at Network Seven, NBC and CNN in the 1980s and 90s. For years, when he wasn't reading the news, he worked on computer software to aid those disabled by spinal cord injuries, Lou Gehrig's disease, motor neurone disease and cerebral palsy.

Ford, through his company Control Bionics, has developed NeuroSwitch G8 to the point where a user doesn't even need actual muscle movement to trigger communication.

By detecting electromyograph (EMG) signals inside a muscle, a user only has to try to move, say, their paralysed finger, for Neuroswitch sensors to operate an iPhone, iPad or Macbook. Recently, Ford finalised software that links NeuroSwitch with Apple's Switch Control software.

The development means the signals picked up by Ford's NeuroSwitch (which costs about \$US17,450-\$22,660) can operate all types of Apple devices. It should be available by the end of next month.

In effect, it means an iPhone and an iPad can be operated simply by thinking about a single movement without even executing it. It seems almost like telepathy. In reality, it's the detection of a brain signal to a muscle that cannot move.

In an email to Tech Talk, Phillips says the development would open up a new world to him. "Having access to iOS devices is a big deal. The iPad is a very portable, very elegant communication device," he wrote via NeuroSwitch.

"Also, iOS devices are a major part of the Smart Home ecosystem. A person with disabilities in control of an iOS device is potentially in control of their entire house, lights, climate control, home theatre, door locks, security systems, zombie-proof window shutters ... everything."

Control Bionics has a long-running contract with the US Department of Veterans to assist severely disabled soldiers returning from war. Most NeuroSwitch users are in the US, but this month Australia's National Disability Insurance Scheme fully funded its first NeuroSwitch patient.

Most NeuroSwitch users are motor neurone disease sufferers, who have an average life expectancy of 27 months after diagnosis. Sufferers progressively lose the use of their limbs and ability to speak, their ability to swallow and breathe, but their mind and senses usually remain intact.

It is estimated almost 2000 Australians have the disease and face a period of being "locked in", unable to communicate as they approach death.

Ford says more than 3000 US veterans have been diagnosed with the disease, and that veterans are 60 per cent more likely to develop the disease than civilians. Meanwhile, Ford is developing NeuroSwitch for other uses. Watch this space.



Michael Phillips is paralysed and cannot speak. But with the aid of technology, he can control an attack bomber computer game. Credit: Tampa General Hospital, Florida.

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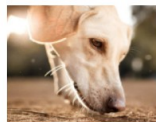
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