**Media Release**

**Chiefs of Staff, News Directors**

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**Ethical issues surrounding implantable brain technologies leads academic to US**

A University of Tasmania philosopher has been awarded an international fellowship to study ethical issues surrounding implantable brain technologies in the US.

Dr Frederic Gilbert from the School of Humanities will spend the year as a Visiting Scientist Fellow at the University of Washington in Seattle, working with both its Philosophy Department and Center for Sensiromotor Neural Engineering.

Dr Gilbert, who specialises in the ethics of brain research, will look at the ethical considerations raised by neural technologies, and the impacts on patients’ post-operative life, self and identity.

Neural technologies include novel deep-brain stimulation (DBS) and brain computer interface (BCI) devices.

“It’s now possible to implant a device in the brain of someone with a specific neurological disease,” Dr Gilbert said.

“These devices target a particular area of the brain that is believed to be responsible for the disease.

“Most patients love the results; however a significant number have seen their lives fall apart.”

DBS is a surgical procedure used to treat a variety of disabling neurological symptoms, most commonly the debilitating symptoms of Parkinson’s disease such as severe tremor, stiffness and walking problems.

“However, there is a recent surge in using DBS for psychiatric conditions that require further research,” Dr Gilbert said.

DBS usually uses two surgically implanted medical devices, sometimes referred to as ‘brain pacemakers,’ which send electrical impulses to specific targets in the brain.
Dr Gilbert’s research involves interviewing patients about their own experiences with the devices.

“Even if you have successfully treated the symptoms of Parkinson’s, we have observed a significant number of patients are worse off after having the device implanted,” Dr Gilbert said.

“Patients who have no history of clinical depression now experience it, or might have divorced or stopped working, and in the worst cases attempted suicide.

“To have this type of technology is great, but there are a number of patients who don’t cope well in regards to their sense of self.”

While being located within the Department of Philosophy at the University of Washington, Dr Gilbert will work with the Center for Sensiromotor Neural Engineering on the next generation of DBS and BCI: closed-loop devices.

Up until now, DBS has been opened-loop, where therapeutic stimulation is set at the same level. Closed-loop refers to when stimulation automatically adapts and is triggered by peculiar brain signals.

“The concern is that the device can induce wrong and harmful emotion,” Dr Gilbert said.

“For instance, if a father is treated for depression, what happens if the device starts to affect him while attending the funeral of his daughter, where being sad is the only way for him to experience and survive grief?

“I’ll be working alongside the centre as they develop this device. They are very interested in what they are doing from an ethics point-of-view.

“BCI is the new generation of technology and there are a lot of questions surrounding this work: for example, if you stimulate one part of the brain, when do you stop being in control and the device takes over?”

Dr Gilbert is an Australian Research Council (ARC) Discovery Early Career Researcher Award recipient. He is based at the University of Tasmania, in the School of Humanities.

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