**PRESS RELEASE**

**Brain-computer interface to control digital devices using thoughts: Australian researchers selected as finalists for the European Inventor Award 2023**

* **Drs Thomas Oxley and Nicholas Opie’s invention has the potential to help millions of people worldwide living with severe paralysis and other neurological disorders**
* **In December 2021, an amyotrophic lateral sclerosis (ALS) patient used the device to send a tweet using only their thoughts**
* **The neuroprosthesis device is implanted through the blood vessels in the brain without the need for open brain surgery**

**Munich, 9 May 2023** - Nearly one in six of the world’s population lives with neurological disorders such as Alzheimer's, Parkinson's disease, stroke, epilepsy, or migraines and brain injuries, according to the United Nations. In an effort to improve the quality of life for those affected, Australian researchers Drs Thomas Oxley and Nicholas Opie **invented a brain-computer interface system that transmits data from the brain wirelessly to control external digital devices hands-free,** toenable patients with severe paralysis to communicate using their thoughts. The device is implanted through the blood vessels to allow people with no or very limited physical mobility to operate technology. **The research duo are finalists for the European Inventor Award in the ‘Non-EPO Countries’ category** in recognition of their promising work.They were selected from over 600 candidates for this year’s edition.

**A device to convert brain signals into digital outputs**

Oxley and Opie’s invention, the Synchron Switch™, which is **the size of a paperclip, is an** **endovascular brain implant** designed to record or stimulate the brain or nerves from within the blood vessels, the natural highways of the brain. The device is inserted into a blood vessel within the motor cortex, an area of the brain that controls sensory and motor activity. The device is designed to become incorporated into the wall of the blood vessel like a tattoo. For the process to work and to achieve control of sophisticated technologies, Opie explains, *“a device needs to be able to record brain signals from different parts of the motor cortex, interpret the signals and convert them into digital outputs that can be used to control assistive technology such as a robotic limb, computer, wheelchair or exoskeleton”*. As the Stentrode™ is inserted via the jugular vein, surgeons can reach the brain region via an endovascular approach, without the need to open a patient's skull and perform invasive brain surgery. The average hospital stay for patients receiving the implant is just 48 hours.

**The treatment could help millions of individuals with severe paralysis communicate**

Oxley is a vascular and interventional neurologist and an expert in brain-computer interfaces, and Opie is a biomedical engineer and expert in neural interfaces. Oxley and Opie’s collaboration led to the founding of Synchron in 2016, a company **specialising in developing implantable neural interfaces for the treatment of neurological disorders.** Opie serves today as the CTO, whilst Oxley is the CEO. The pair’s commitment to patients and combined expertise paved the way to the Stentrode. For the 14 million people worldwide living with neuromuscular disorders (damage to nerves that are responsible for voluntary muscle movement), Oxley and Opie’s invention could prove life-changing.

Synchron was **approved by the FDA in 2021 to conduct human clinical trials for a permanently implantable brain-computer interface,** which are underway. The first patients have already received implants, four people in Australia and three in the USA. In December 2021, an amyotrophic lateral sclerosis (ALS) patient used the device to send a tweet using only their thoughts.

Even though the scientific advances of the invention are significant, Oxley highlights that the resilience of the human spirit and connection between people is paramount to the success of the treatment, *“the motivation of the patient and the relationship with our engineers is critical. Some of our engineers have formed really deep relationships with the patients and it's been incredible. It's inspiring for the team seeing how much energy these people who are going through the most traumatic period of their lives are putting into this programme.”*

Oxley and Opie have been named among the three finalists in this year’s European Inventor Award in the ‘Non-EPO Countries’ category, **which recognises the work of outstanding inventors from outside the EPO's 39 member states but who have been granted a European patent.** **The** **winners will be announced at a hybrid ceremony on 4 July 2023 in Valencia (Spain).** This ceremony will be broadcast online [here](https://inventoraward.epo.org?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press) and is open to the public.

Find more information about the invention’s impact, the technology and the inventors’ stories [here](https://new.epo.org/en/news-events/european-inventor-award/meet-the-finalists/thomas-oxley-and-nicholas-opie?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press&mtm_group=press).

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**About the European Inventor Award**

The European Inventor Award is one of Europe's most prestigious innovation prizes. Launched by the EPO in 2006, the award honours individuals and teams, who have come up with solutions to some of the biggest challenges of our time. The finalists and winners are selected by an independent jury comprising former Award finalists. Together, they examine the proposals for their contribution towards technical progress, social and sustainable development, and economic prosperity. All inventors must have been granted a European patent for their invention. Read more [here](https://new.epo.org/en/news-events/european-inventor-award?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press) on the various categories, prizes, selection criteria and livestream ceremony to be held on 4 July 2023.

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