How AI and new technologies revolutionise my ability to work and study

By Eleanor Beidatsch   Information and Communication

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Eleanor Beidatsch is an ABC journalist based in Albany. *(ABC News: Andrew Chounding)*

When I was a baby, the doctors told my parents I would die by the time I was two years old.

I was diagnosed with spinal muscular atrophy or SMA type 1, an incurable genetic condition that causes profound muscle weakness and difficulty breathing.

This came as a devastating shock to my parents, and it started my mum on a quest to learn everything she could about my condition and find a way to prevent it from killing me.

She was successful and now I'm a 31-year-old ABC journalist and palaeontology master's student at the University of New England.

So, hats off to mum, she did a good job.

Technological advances

Growing up with a profound physical disability in the 1990s wasn't easy though, especially when it came to education.

I can't move my hands enough to write or type on a keyboard, so for high school and most of university, I dictated everything to a scribe who wrote for me.

This didn't give me much independence and if the scribe was unavailable, I couldn't study well.

But advances in technology since then meant I was able to access my laptop through bluetooth connection on my power wheelchair and I could start working and studying independently.

I control my laptop through bluetooth and grasping the joystick between the index and middle fingers of my right-hand, move the cursor back and forth like a mouse.

But it came with a cost.

Using a bluetooth joystick, Eleanor can control her computer. *(ABC News: Andrew Chounding)*

I developed a repetitive strain injury in my right hand from using it eight hours a day, and it started to impact both my workflow and ability to drive.

So last year, my occupational therapist and I concluded I needed a different approach.

I was provided with a pair of trial technologies that were funded by the National Disability Insurance Scheme (NDIS) that provide other options for accessing the computer.

One is a mouse that is controlled by the movement of my head and gives my arm a chance to rest and recover.

This device helps Eleanor control a mouse by using her head movements. *(ABC News: Andrew Chounding)*

The other is an artificial intelligence-powered voice recognition software which I use to dictate my speech into text.

The new technologies work in combination with the bluetooth joystick and together, they've meant I can use the computer for hours without tiring out and still be able to drive my wheelchair.

AI helping others

I'm not the only one.

Sam Ren has cerebral palsy and has been a pioneer in using assistive technology for years, but for simple tasks like turning on the TV he relied on support workers.

Sam Ren has a YouTube channel documenting his life.

Now, he tells the artificial intelligence (AI) to do it, and the software speaks for him.

"Instead of waiting for my support worker I can ask it, 'hey Google, turn on my TV,'" Sam said.

He uses a combination of switch controls and AI for daily activities which has given him more independence.

Sam has returned to writing the book he started many years ago, because it's easier to write with dictation than using switches.

The AI is built on speech recognition software, and it's not without privacy concerns.

A 'golden opportunity'

The manufacturer's website explains they can use the voice data however they want, unless you specifically opt out.

Professor De Silva says there is risk and reward when using the technology. *(Supplied: La Trobe University)*

According to AI expert Professor Daswin De Silva from La Trobe University, voice recognition software is at risk of hacks and confidentiality leaks.

"An AI model can be hijacked or hacked, and this means the speech-to-text can be completely manipulated to serve malicious activity," he said.

"If you use voice activation or authentication, which is used by some banks and other critical services, then [a hacker] can essentially conduct identity theft."

Professor De Silver is familiar with the AI technology I use and said the benefits probably outweigh the privacy issues for people with disabilities.

"I see it as a golden opportunity, because if you think of disability, there is a dependence on another human for certain daily activities that you would want to perform.

> **"[With AI] the person with disability becomes a bit more independent and has more control, or autonomy."**

The AI has done that for me, and I've never used anything like it before.

A costly measure

Occupational therapist David Harraway said software like this means people with non-standard speech can communicate, write and control things around their homes in a way other programs can't.

> **"I think for a lot of people, it enables them to enter the world of text that might have been very difficult otherwise," he said.**

"[It] s a pretty unique solution."

The AI isn't free, and Mr Harraway said even though you can access a trial, the price of subscription is a barrier for some people.

Answering emails is much more manageable. *(ABC News: Andrew Chounding)*

"There's a free demo, but once that's finished, you'd need to have money for that yearly subscription."

The subscription is almost $1,200 a year, but mine is covered by the NDIS.

For me, the benefits of AI outweigh the concerns.

Since using AI and head control, I can commit more time to each task without getting tired and daily activities like walking my dogs are easier because my arm isn't in pain.

Before, I would be tired just after writing a few thousand words which would take hours.
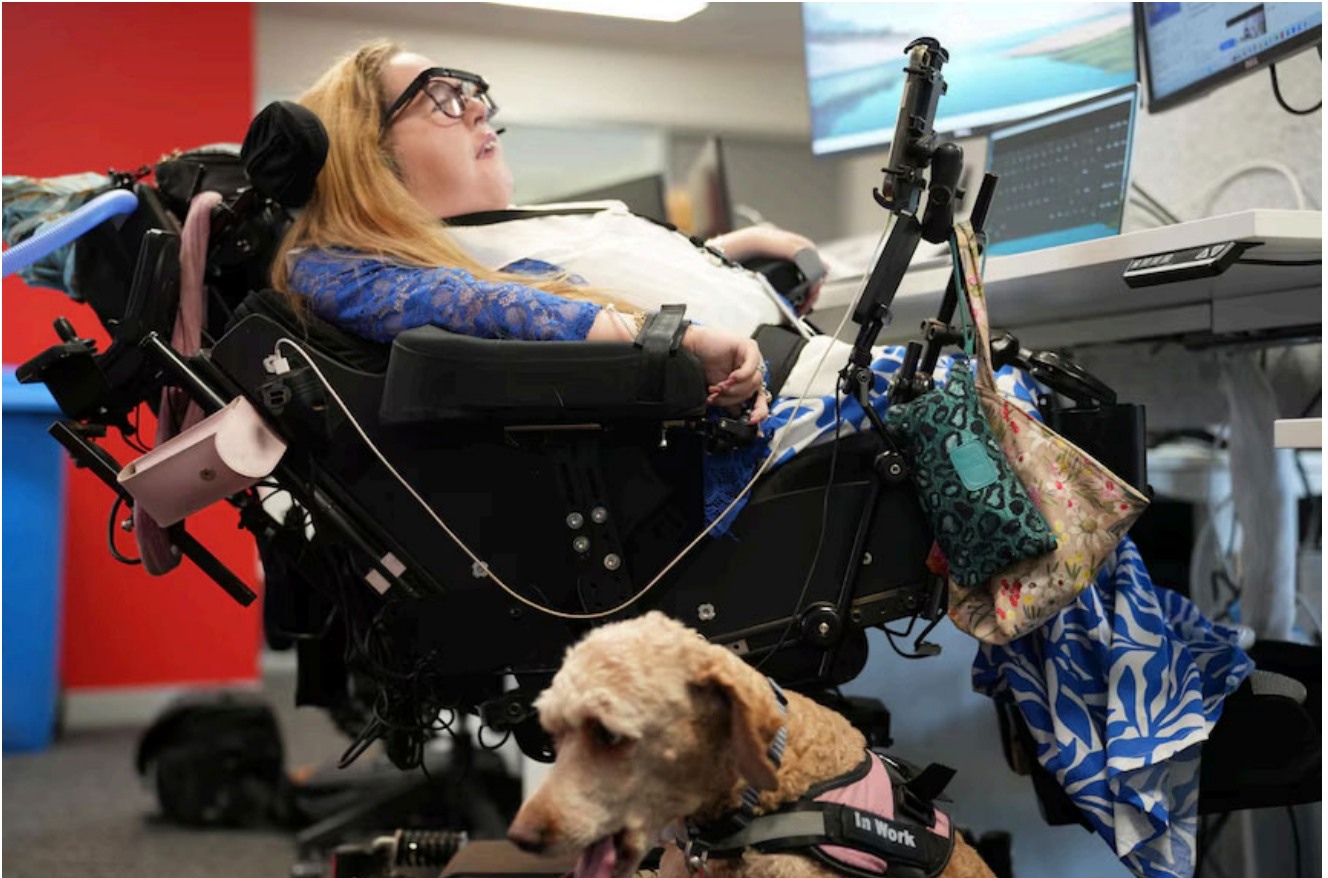
Button is Eleanor's assistance dog. *(ABC News: Andrew Chounding)*

I was wondering if I could have a career in journalism and a degree in palaeontology at the same time, or if I would have to choose between my job and study.

With three different options at my disposal, I no longer have to choose.

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