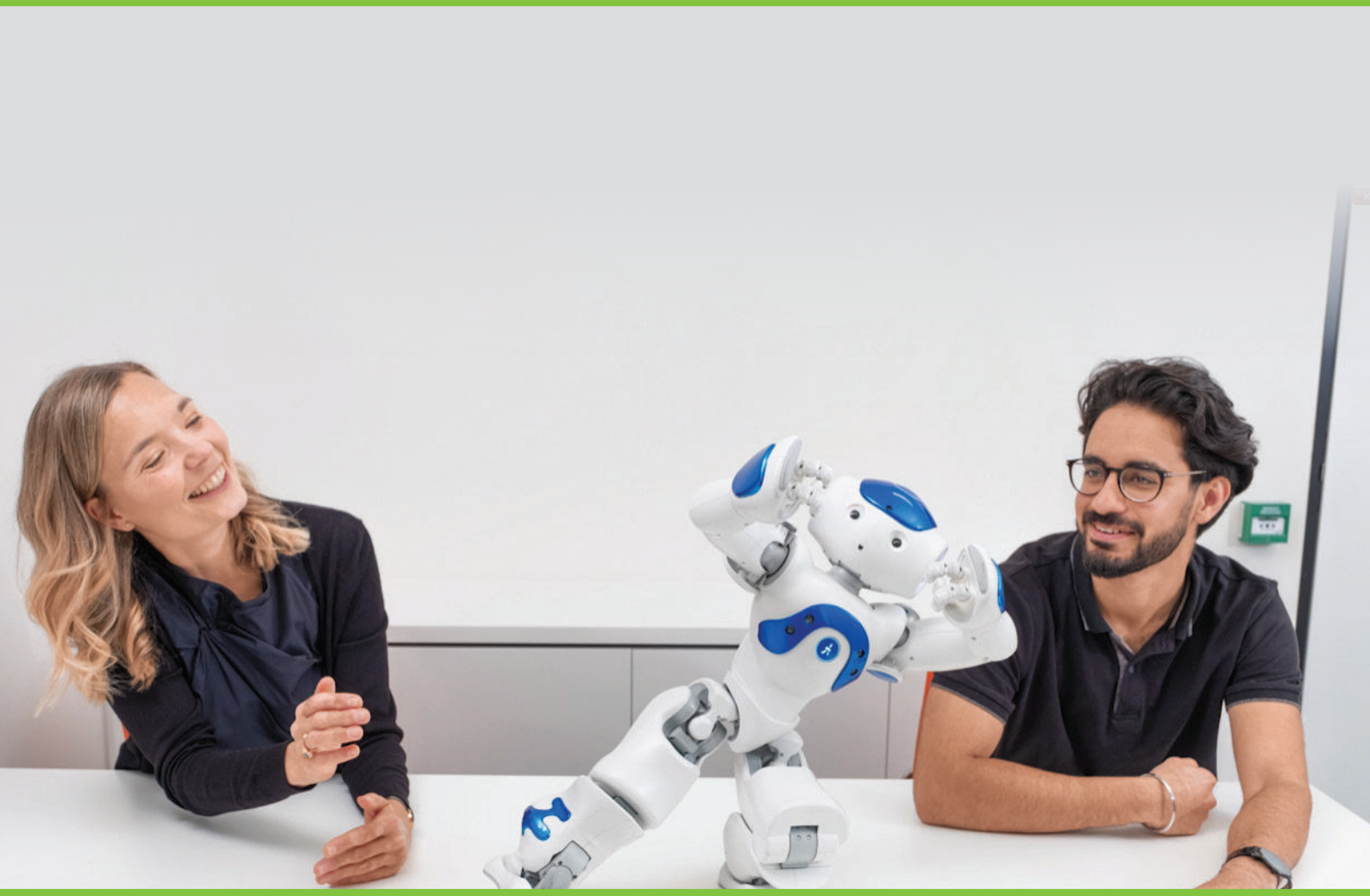
# Technology

## Advancing technology innovations to improve treatments and interventions and enable inclusion for people living with cerebral palsy

Cerebral Palsy ALLIANCE
RESEARCH FOUNDATION



**Technological innovation has tremendous potential to enable new treatments and interventions for people with cerebral palsy (CP) and can be a powerful driver of inclusion.**

**Things that seemed impossible a decade ago are now a reality, like children using eye-gaze technology to communicate.**

## Technology that reduces barriers and drives independence

Through a novel and multidisciplinary approach, researchers, people with lived experiences, clinicians, engineers and industry partners are joining forces.

Our technology research priorities focused on cognition, communication and mobility solutions to improve inclusion for people with CP:

1. Enable every person with CP access to Cognitive Assessments across the life span
2. Advance and support research into novel communication technology
3. Advance and support research into novel mobility technology for people with CP at all severity levels
4. Establish a Technology Advisory Group of all key stakeholders

## What technology research means for people with CP

We have good reason to be optimistic about the future that technology will make possible in preventing CP and improving quality of life for people living with disability.

There are clear breakthrough opportunities in providing long-term, rapid, intuitive, useful communication and mobility for people with CP using technology such as artificial intelligence, flexible technology and robotics.

For a child with CP, there are many different types of devices that can be used to allow for participation in more activities, enhance learning, improve communication, hearing, and mobility, and to make life easier. Assistive technology is crucial in helping a child succeed and transition into independent adulthood.

Assistive technology promises to provide wonderful future support for people living with CP. Robots will be able to help with tasks, and exoskeleton suits will provide strength and the ability to exercise. People with CP and other non-degenerative disabilities will be able to choose to have an array of cochlear implant like devices wirelessly reconnect their muscles. These devices will provide consistent rehabilitation.

Communication is at the very heart of who we are as people. However, for 50% of children with CP using speech to talk to their family and friends is difficult or impossible. Additionally, cognitive strengths of many children with severe CP may be underestimated or go overlooked. Technology solutions hold the key to be understood.

Our team are working to break down the barrier to the human right to communicate by accurately assessing the learning and use ability of children and adults with severe complex communication needs.

Through our collaborative work, we are looking at how we can assist movement using bionics, robotics and artificial intelligence to help people with CP stay better connected to their communities.

One exciting area in development is Brain Computer Interfaces, with groups like BrainGate. Research into Brain Computer Interfaces will help us with fast, high bandwidth interfaces to provide control for communication and hold the promise to even regain speech.

## Ambitious research goal

Cerebral Palsy Alliance has ambitious technology goals to enable transformative discoveries in prevention, treatment and cures for CP and to enable inclusion and improve quality of life with a focus on cognition, communication and mobility.

*"For most people, technology makes things easier. For people with disabilities, technology makes things possible."*

*Mary Pat Radabaugh*

## Family perspective

*"I'm not just the girl in the wheelchair... it's not going to stop me from having fun. By inventing things for myself, I know there are other people who can benefit from it too."*

*11-year-old Sadie, an advocate and inventor, shining a spotlight on why we need to encourage and invite innovators from every background.*

## Theme Leader

Dr Petra Karlsson, BAppSc (Occupational Therapy), MSc (Occupational Therapy), PhD

*"It will be fascinating to see what potential these technologies may hold for people with disabilities…especially novel innovations using mainstream technology. There are high tech needs for people with disability and innovative technology can facilitate greater participation, inclusion and independence."*

*Dr Petra Karlsson*

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