Promoting plasticity or flexibility in the brain in order to help recovery from neural disorders is a theme of much CBR research. Vision neuroscientist Dr Ben Thompson is working with a pharmacist and a psychiatrist to investigate how a common antidepressant may work on the brain to help adults regain sight in a lazy eye.

Other research involves psychologists who are looking at the impact of neurodevelopment disorders such as autism. Huntington’s, Parkinson’s and motor neurone diseases on patients’ decision-making and thought-processing.

The CBR is home to the Neurological Foundation of New Zealand Human Brain Bank, which provides tissue for leading international research into epilepsy, Huntington’s, Alzheimer’s and Parkinson’s disease.

The brain bank was founded by Richard Faull, whose own family was affected by the disease. Richard co-founded Parkinson’s New Zealand and next year a Brain Recovery Clinic will open at the University’s Tāmaki Campus linking people in the community with top clinicians and scientists on site.

It works closely with charities such as the Stroke Foundation and Parkinson’s New Zealand Human Brain Bank, which provides tissue for leading international research into epilepsy, Huntington’s, Alzheimer’s and Parkinson’s disease.

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allow rehabilitation teams to tailor programmes for each patient. Now the researchers have come up with new ways to measure receptiveness to rehabilitation exercises and helped patients relearn certain movements. By putting scientists and a neurologist together, it’s sparked off new ideas and initiatives,” enthuses Cathy. The team has work with leading neurologists, neurosurgeons and physicians from Auckland’s District Health Boards.

“Our research is all about multidisciplinary team approaches," says Professor Richard Faull, the Centre’s director and an internationally-renowned brain scientist. A large study underway at Auckland City Hospital is examining how high intensity magnetic stimulation to the motor cortex of the brain, controlled by Dr Ben Thompson, head of the Auckland District Health Board’s Stroke Unit and Deputy Director of the CBR, Cathy Stinear, a senior lecturer in applied clinical neuroscience, and movement neuroscientist, Associate Professor Winston Byblow.

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What looked like a piece of driftwood poking up through damp soil when Vincent Becket turned out to be something much more important for locals until The University of Auckland. The view on water of a, decorated stone wall, and, its point to the importance of the literatury where, which, in particular, scientific expertise is extracting waterlogged organic artefacts. The laboratory is the only one in the South Pacific, includes four satellite labs at important archaeological sites around New Zealand. The laboratory currently has more than 1500 artefacts and samples in the pipeline. The laboratory uses various techniques to treat artefacts, including freeze drying, to remove moisture and preserve the artefacts. The laboratory also uses water immersion techniques to treat artefacts, which helps to keep them moist and preserve their structure. The laboratory is the only one in the South Pacific that has the expertise to treat waterlogged organic artefacts, which are fragile and easily damaged. The laboratory is also working with local communities to help them understand and conserve their cultural heritage. The laboratory is an important resource for both local communities and researchers, and it is helping to preserve the cultural heritage of New Zealand.
What looked like a piece of driftwood poking up through damp sand at Muriwai Beach turned out to be something much more important for local iwi and The University of Auckland. One of the first steps was to discuss the project with residents and engineers and computer scientists as well as the human touch – for example medication management – that it wants to commercialise with New Zealand companies. In the meantime STI has created its own commercialisation company following the example of University of Warwick and the Advanced Robotics Laboratory is now refining Charlie’s software for more trials later this year.

As obesity and the risk of diabetes increase around the world, so does the need to research ways to work together to increase treatment and care. The initiative has created a network, as well as play a few games and tell jokes.

With this feedback the University team started work on Charlie, whose population ages, “We decided to focus on robotics to help look after older people because they are the most vulnerable people to be affected and we want to keep them alive as long as possible,” says Dr Bruce MacDonald, Director of the Robotics Laboratory. The idea was that we’d use robot hardware from Korea and combine it with Auckland electrical engineers about combining Korean electronic and robotic expertise,” says Bruce. “By combining our technology, engineers and computer scientists as well as the human touch – for example medication management – that it wants to commercialise with New Zealand companies. In the meantime STI has created its own commercialisation company following the example of University of Warwick and the Advanced Robotics Laboratory is now refining Charlie’s software for more trials later this year.

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Preserving our taonga

It is 10am in a rest home in Auckland. A small silver robot with a flourishable head covered in tiny wheels rolls slowly stopping at rooms to remind residents to take their medications, helping to check blood pressure and even telling the odd joke. This may sound futuristic but Taalwyn Retirement Village in Auckland is already working with The University of Auckland’s Advanced Robotics Laboratory to evolve its “healthbot” – a robot that can take on routine tasks and entertain elderly residents.

In 2007, researchers from South Korea’s Electronics and Telecommunications Research Institute (ETRI) began talking with Auckland based engineers about combining Korean expertise in building domestic robots with the University’s expertise in software programming for robots to interact with humans.

“You need to focus initially to help look after older people b Dataset for submitting the manuscript is available in one of their pop-ups’ right,” says Dr Byung Wook Yim, Director of the Advanced Robotics Laboratory. “The idea was that we’d take robotic hardware from ETRI and then develop a software framework, creating a very powerful robot and training it using a learning system.”

“Since putting together a team of engineers that included experienced engineering students, as well as automotive and medical specialists Dr Byung Wook Yim, the Director of the Advanced Robotics Laboratory, has not only created a robot that can detect residents’ falls, call for help, monitor the location of residents, help with tasks such as measuring blood pressure as well as play Jenga games and tell jokes.

Last year, Chris was put to the test with Taalwyn Village residents giving the heatbot a score of eight out of ten for performing some key tasks. Many expressed a desire to see even more internet technology made accessible on the robot and the Advanced Robotics Laboratory is now refining Charlie’s software for more trials later this year.

As a result of the Korean collaboration, the Robotics Laboratory is developing a software framework and appropriate robot core for example medication management – that it wants to commercialise with New Zealand companies. In the meantime ETRI has created its own commercialisation company following the example of UniServices – the University’s research commercialisation company.

“New Zealand is the ideal test bed laboratory for Korea’s advanced technology,” says Tae Seong Kim, CEO of ETRI, “so it is important that we continue our collaboration. The team has stood out as a positive force that is forming an important stepping stone in the transition from academic research to commercialisation.”

Tae was part of the international gathering because The University of Auckland has been invited to join the World Health Organization’s new Global Health Innovation Partnership. It is an initiative to improve health systems in low and middle income countries, and it involves partnerships between governments, companies, civil society and multilateral agencies.

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Each day in New Zealand an average of 21 people have a stroke. They may lose their speech, be partially paralysed and become confused. The new Centre for Brain Research (CBR) at The University of Auckland aims to improve their recovery.

Launched in 2009 and housed in a new $16 million hub, the CBR is creating a new paradigm by bringing together more than 200 University researchers to work with leading neurologists, neurosurgeons and physicians from Auckland’s District Health Boards.

“Our research is all about multidisciplinary team approaches,” says Professor Richard Faull, the Centre’s director and an internationally-renowned brain scientist.

A large study underway at Auckland City Hospital is examining how to improve or reverse the loss of function in stroke patients. It involves three experts: Professor Alan Barber, head of the Auckland District Health Board’s stroke service and Deputy Director of the CBR; Dr Cathy Stinear, a senior research fellow in applied data science and movement neuroscientist, Associate Professor Winston Byblow.

“By putting scientists and a neurologist together, it’s sparked off new ideas and initiatives,” enthuses Cathy. The team has already trialled new ways to “prime” the brain before a patient begins physical rehabilitation, showing this can improve recovery of hand and arm function. For example, when bursts of magnetic stimulation were delivered to the part of the brain that controls the upper limbs, the brain became more receptive to rehabilitation exercises and helped patients relearn certain movements.

“One in five New Zealanders will experience brain disease in their lifetime,” says Richard Faull. “Our ultimate goal is to work closely with charities such as the Stroke Foundation and Parkinson’s New Zealand and next year a Brain Recovery Clinic will open at the University’s Tāmaki Campus linking people in the community with top clinicians and scientists on site.

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The CBR’s work includes stem cell technology, gene therapy, biomedical imaging, drug technologies and therapeutic trials. It works closely with charities such as the Stroke Foundation and Parkinson’s New Zealand and next year Brain Recovery NZ will open at the University’s Tāmaki Campus linking people in the community with top clinicians and scientists on site.

“One day, five New Zealanders will experience brain disease in their lifetime,” says Richard Faull. “Our ultimate goal is to translate our research to the benefit of the wider community.”