

New sensory devices will aid Parkinson's and stroke patients

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People who have suffered a stroke or who have been diagnosed with Parkinson's disease, could benefit from new research at Queen's University Belfast.

Dr Cathy Craig from Queen's School of Psychology is researching the development of new sensory devices for those who normally have difficulty controlling their movements.

The work is being funded by a grant of €860,924 from the European Research Council.

Dr Craig is the only researcher in Northern Ireland to obtain the prestigious grant from an international pool of over 9,000 applicants.

She was selected as one of the top 201 young researchers currently working in Europe by the European Research Council (ERC). Only one other researcher on the island of Ireland (Stephen Connon of Trinity College Dublin) has been selected for one of the Starting Independent Researcher's grant so far.

Dr Craig said: "Being able to control the speed of our movements is key to survival. For some people areas of the brain used to generate this type of control are damaged (e.g. by a stroke) or are poorly developed (e.g. putting a ball in golf).

"By using engineered timing aids that will provide sensory information

that can be picked up through our eyes, ears or sense of touch, the brain can learn to guide these types of movements in a more controlled way.

"We hope that the findings from this project will help us further understand how we control our movements and will provide a tangible way of helping those who have difficulty controlling their movements in a wide range of applications."

Using a fund of €7.5 billion over seven years, the ERC expects projects such as Dr Craig's to bring about new and unpredictable scientific discoveries which will form the basis of new industries and social innovations.

Dr Craig's project, known as TEMPUS-G (Temporal Enhancement of Motor Performance Using Sensory Guides), will use theories about how the brain controls self-paced movements as a basis for designing sensory devices (visual, acoustic and haptic). The potential beneficial effects of using these devices will be tried and tested in both a sports (e.g. golf) and rehabilitative (e.g. stroke) context.

Dr Craig will also be using the expertise of colleagues across the University in her project, including those in the School of Electronics, Electrical Engineering and Computer Science and the School of Music and Sonic Arts.

Source: Queen's University Belfast

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