New research paves the way to begin developing a computer you can control with your mind

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A team of researchers led by Angelika Lingnau, from the Department of Psychology at Royal Holloway has been able to predict participants' movements just by analysing their brain activity.

The research, which is published today (21st October) in the *Journal of Neuroscience*, is the first human study to look at the neural signals of planned actions that are freely chosen by the participant and could be the first step in the development of brain-computer interfaces.

Dr. Lingnau and her team used functional magnetic resonance imaging (fMRI) while participants planned and performed simple hand movements inside the scanner. Crucially, participants freely chose which of three hand movements to select. Using machine learning algorithms,

the researchers then determined whether they were able to predict which movement the participant was going to perform on the basis of the brain activity measured during the planning phase.

Dr Lingnau said: "We are very excited by our findings because it is the first time a human study of this kind has been carried out where the participants were able to choose a movement by themselves and were the only ones who knew what they had planned to do. We were successfully able to predict what action they were going to carry out just from analysing their brain signals.

"This opens up huge possibilities for the future including the development of technology you can control with your mind as well as enabling the development of methods for helping those with paralysis to have direct brain control to the affected areas."

More information: S. Bracci et al. Representational Similarity of Body Parts in Human Occipitotemporal Cortex, *Journal of Neuroscience* (2015). DOI: 10.1523/JNEUROSCI.4698-14.2015

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