Mind-Controlled Quadcopter Brings New Possibilities for the Disabled

National Science Foundation

With support from the National Science Foundation (NSF), biomedical engineer Bin He and his team at the University of Minnesota have created a brain-computer interface with the goal of helping people with disabilities, such as paralysis, regain the ability to do everyday tasks.

Currently, the researchers are testing out their system using a flying object known as a quadcopter, and controlling it with someone's thoughts! For the experiments, the team uses both an actual flying quadcopter and a virtual one. In both experiments, the interface is non-invasive, so there are no implants. Participants wear an electro-encephalography, or EEG, cap with 64 electrodes. When the participant thinks about a specific movement, neurons in his or her brain's motor cortex produce tiny electric signals, which are sent to a computer. The computer processes the signals and sends directions through a Wi-Fi system to direct the quadcopter.

He and his team chose the quadcopter for this testing phase to keep participants engaged, but the interface is designed to help in the real world with everyday tasks, such as turning on the lights or surfing the internet.

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