Current and future applications for brain-computer interfaces

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Research groups all over the world have been working enthusiastically on Brain-Computer Interfaces (BCIs), which provide a direct connection from the human brain to a computer. BCIs translate brain activity into control signals for numerous applications, including tools to help severely disabled users communicate and improve their quality of life. BCIs have been used to restore movement, assess cognitive functioning, and provide communication and environmental control.
Dr. Christoph Guger, CEO of g.tec medical engineering GmbH and developer of real-time brain-computer interfaces, will shortly explain the three major BCI approaches - motor imagery, P300 and steady state visual evoked potentials (SSVEP) - for spelling, assessment, rehabilitation and robot control. He will also explain new directions like active and dry electrodes, invasive ECoG systems and advanced VR control. The audience will get informed about all the required hardware and software, and BCI operation.
g.tec is also an active member in a number of national and international research projects and is active in scientific publishing. One of these projects is called Neurographene (http://www.neurographene.eu/), which focuses on the fabrication of a graphene-based multielectrode array (MEA) prototype for local stimulation and recording of brain activity. It is our hypothesis that characteristics of graphene such as flexibility, high biocompatibility and conductivity can be exploited into engineering an optimal brain interface.