The Faculty of Computer Science at the University of Vienna cordially invites you to the

Colloquium

BrainWaveBank: a suite of tools for large scale EEG studies in the wild

with **Dr. Brian Murphy**

BrainWaveBank, Ireland

When? 15th of November, from 3:00 pm

Where? Seminar room 11 (SR 11), 2nd floor, Faculty of Computer Science
Währinger Straße 29, A-1090 Vienna

Abstract

In basic and applied neuroscience we are often limited in the breadth of data we can collect. Due to the practical burden of scheduling participants and neuroimaging resources, lab studies tend to look at a brief snapshot in time with restricted populations (often young, well-educated, prosperous, Western). Brain-Computer-Interaction and other neurotechnology research has struggled to translate from universities to broader use. In clinical neuroscience, screening and tracking of patient populations with CNS (central nervous system) disorders generally rely either on easy to use but insensitive self-reports and paper-based tests, or expensive and often invasive techniques such as PET scans and analysis of CSF fluid. And the limited quantities of data that result from these practices limit the potential for applying machine learning to extract new insights about how the mind and brain work, and can stop working.

BrainWaveBank have developed a suite of tools that make large-scale frequent sampling of brain activity possible for the first time. An affordable and easy-to-use 16-sensor dry wireless headset can be used by healthy and impaired groups in home and other non-lab environments. Gamification of classical electrophysiology tasks (Oddball P300, Flanker ERN, etc) encourage users to engage for repeated recordings, and give us a functionally specific view of how cognitive domains develop over time. Cloud based storage and automated analysis make it practical to monitor and manage large distributed studies. In this talk Brian Murphy (Chief Scientific Officer at BrainWaveBank) will present data to validate the approach with neurotypical users, and also patients with neurodegenerative and neuropsychiatric disorders.