

# **Exploring cognitive states through real-time classification and sonification of brain data**

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## **Abstract**

With the recent advances in EEG technology and the popularization of low-cost mobile EEG devices, brain-computer interface (BCI) systems and neurofeedback tools have become more accessible. Real-time EEG signal processing is increasingly popular in the context of digital arts projects powered by a neuroaesthetic approach. CoCo Brain Channel is one such project : designed to use real-time processing of EEG signal in order to generate a musical environment, it provides the user with a means to hear and control his own brain activity. This is achieved by hooking-up a commercial mobile EEG device to a music generation algorithm built in PureData. The generative algorithm uses features from EEG signals to modulate harmonic and rhythmic structures of multiple oscillators. The result is a continuous musical soundscape reflecting the evolution of EEG signals. Improvements and possible applications for basic research will be discussed.