

# **Supporting Meditative Awareness through Neurofeedback Wearables**

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# **1 Introduction**

## **1.1 Neurofeedback**

## **1.2 Meditation**

Over the last decades, meditation has gained the interest of popular culture and the scientific community. Documented beneficial effects range from mood improvements to structural changes in various regions of the brain. [Tang1] Though there is not one single meditation practice, the methods are plentiful. While often associated with stillness and watching ones breath, there are also more active forms of meditation that involve more movement. In this paper, we will not deal with specifics of and differences between concrete practices, but rather look at a general version of meditation and the mutual interaction with wearable neurofeedback devices.

## **1.3 Awareness**

# **2 Goals**

Since the beneficial effects of meditation are so various, the potential goals of using a wearable device that provides neurofeedback to its user are inherently diverse. Machine assisted meditation could help individuals to improve faster, track their progresssion, analyze the state of mind and lower the entrance barrier for novel practitioners. [BD1]

# **3 Measurement Data**

## **3.1 Biological Signals**

## **3.2 Measuring**

## **3.3 Processing and evaluation**

# **4 Available Devices**

## **4.1 Neurosky - Mindwave Mobile 2**

## **4.2 InteraXon Inc. - Muse 2**

## **4.3 Emotiv - Epoc+**

# **5 Conclusion**

# **References**

- [BD1] Tracy Brandmeyer, Arnaud Delorme, Meditation and neurofeedback Frontiers in Psychology, Article 688 (October 2013).
- [Tang1] Tang, Yi-Yuan, Britta K. Hölzel, and Michael I. Posner. "The neuroscience of mindfulness meditation." Nature Reviews Neuroscience 16.4 (2015): 213-225.