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#### **Author**

Pisters, Patricia

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# Perfecting the Self in Digital Media Culture: Neurofeedback and Embodied Self-Knowledge

Patricia Pisters

Neurofeedback is used in closed-loop settings, where subjects learn to control the activation of specific brain regions when presented with a measure of that regions activation (Cavazza et. al. 2015) Neurofeedback is used increasingly in the development of Brain-Computer-Interfaces and sometimes make use of virtual agents to provide realistic visual feedback in order to enhance mental behavioral and emotional control. This paper will investigate how the experimental settings of neurofeedback systems, where a mind reflects back on itself in order to learn, correct, perfect or control, can be extrapolated to a larger and complex media context. Several fields governed by similar looping patterns. A first cultural feedback loop system that can be recognized as such is related to CCTV systems and other surveillance mechanisms (including drones, facial recognition software and other 'nonconscious cognitive agents'); these systems and devices actually have turned the world into a closed feedback loop circuit, which includes the embodied brain of the human subject. Besides this collective political level, there is another level of looping that operates on our individual consciousness: the camera switch mode of our cell phones have encouraged the cult of the selfie, making us all reflect back on ourselves in a narcissistic tradition of self-reflection and perfect self-presentation. Thirdly, filmmakers have turned their camera's increasingly inward, filming by and large from 'inside out', showing us the world of their protagonists in all their fantasmatic and regularly even psychopathological dimensions. It is this third level of brain reflexivity in contemporary digital cinema that I will focus on in this presentation. In this context I will refer to two particular cinematographic cases of 'neurofeedback looping' and 'avatars' (Darren Aronofsky's Black Swan, 2010; and Simon Pummel's Brand New U, 2015) that are telling of the kind of problems of embodied (self)knowledge we are facing today.