

Neuroethics: Addressing the Ethical, Legal, Social, and Cultural Implications of Neurotechnology

Entertainment Preamble

The field of entertainment has consistently made use of advances in technology to hold the attention and interest of an audience, to convey emotion and information, and typically to provide amusement. From the innovations of props, sets, dance, sound, music, and video that are conveyed in person, pre-recorded, or transmitted great distances, efforts to incorporate neurotechnology into entertainment are only a recent manifestation of this grand and entirely human endeavor. Currently, the perception by some that entertainment neurotechnology has increased potential is driving many development efforts. Indeed, the successful development of inexpensive and unobtrusive neurotechnologies for entertainment could ultimately represent perhaps one of the largest and most frequent uses of neurotechnology in the future.

Going beyond the foundations of entertainment in storytelling and other performative arts, we include forms of art that could be conveyed through neurotechnology as well as gaming and other participatory forms of entertainment. Neurotechnologies highlighted include those that are intended to sense or record brain signals, and/or augment, facilitate, or enhance experiences such as virtual reality (VR) headsets, non-invasive EEG headsets, and other possible technologies that integrate neurosignals between artists and audience or provide real-time biometric feedback. Future neurotechnologies also may include brain-to-brain interfaces (BBI) for multiplayer gaming experiences. While the use of interactive media and supporting hardware (e.g., VR headsets) might be automatically classified as entertainment, this document will focus on applications where the goal is strictly artistic expression and/or the enjoyment of users, leaving interactive experiences with different goals (e.g., health, wellness, education, etc.) to be discussed in other application areas.

Given the vast potential of entertainment neurotechnology, it is important to faithfully assess the true state of existing technologies, identify potential near-term and future implementations, avoid unfounded hype, and carefully consider the ethical, legal, social, and cultural implications (ELSCI) of its use.