

Researchers' opinions about ethically sound dissemination of BCI research to the public media

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Abstract. BCI research and (future) applications raise ethical questions. A websurvey among 144 BCI researchers identified disseminating BCI research to the public media as a central topic. Most researchers felt that BCI scientists must responsibly communicate with the media and that general ethical guidelines on BCI research and application are needed within the next 5 years. We recommend further debate on ethical aspects related to BCI and the development of guidelines.

Keywords: neuroethics, brain-computer interface, dissemination, media, ethical guidelines

1. Introduction

Most Brain-Computer Interface (BCI) scientists want to help people with physical disabilities by providing them with assistive technology (AT) based partly on BCI technology. However, some future BCI research and applications may not have *only* beneficial consequences and raise ethical questions [Clausen 2008, 2009; Tamburrini 2009]. Recently, a first workshop related to ethical issues was organized at the 4th International BCI Meeting in Asilomar, California. Workshop participants identified proper dissemination of BCI research to the public as an urgent ethical issue. Overly positive media articles or exaggerated product claims could raise false expectations in stakeholders and subsequent disappointment can certainly be considered as one harmful consequence [Vlek et al., submitted; Haselager et al., 2009]. We also conducted a survey at the Asilomar conference to assess the ethical views and concerns of the BCI community. Here, we summarize a small part of this survey. We report the views of the attendees on 1) how BCI researchers should disseminate results to the media and 2) when ethical guidelines specific to BCI research and BCI use should be formulated.

2. Materials and Methods

A total of 144 (105 males, 39 females) out of 289 attendees responded to the questions about dissemination to the media. Seventy three persons were aged between 18 and 30, sixty-nine persons between 31 and 55 and two persons were aged between 56 and 70. The sample consisted of experts from various disciplines (e.g. neuro-, computer or cognitive scientists, electrical engineers, psychologists etc). Eleven participants worked as BCI experts in Asia, sixty participants in Europe and seventy-three participants in North America.

Participants completed an online survey that included four statements regarding media (see table 1). Participants could choose from 5 answer options: “completely disagree”, “mostly disagree”, “I don’t know”, “mostly agree” or “completely agree”. In addition, participants were asked to indicate when ethical guidelines specific to BCI research and use should be settled. They could choose from 4 answer options: “between now and 2 years”, “in 3-5 years”, “in 6-10 years” or “later”.

3. Results

Table 1 summarizes responses concerning the media. Over 80 % of the participants agreed that BCI scientists have a responsibility to check whether journalists accurately separate factual from fictitious statements. However, as one participant commented: “*We can try our best to get correct info*”

out there and ask to review anything a reporter writes before it goes to press, but sometimes it is simply out of our control". A similar majority agreed that BCI scientists should actively speak out against inaccurate media statements and should moderate enthusiasm when speaking to the media. Participants did not agree on whether BCI scientists should restrict themselves to discussing only current or near-future applications of BCI. One participant commented: "Scientists have the duty to tell facts. But that doesn't mean they cannot be enthusiastic about their field and have a vision". Finally, 85.8 % of the participants recommended ethical guidelines specific to BCI research and use within five years. Another 8.5 % wanted such guidelines within 10 years, and only 5.7 % thought that such guidelines could wait longer than 10 years.

Table 1. Overview of statements from the survey regarding dissemination of BCI research to the media. Column 2-6 show how many percent of the participants choose each answer.

Statements	Completely disagree	Mostly disagree	I don't know	Mostly agree	Completely agree
It is the responsibility of scientists to check whether their separation from the facts and fiction is adequately represented by journalists	2.1	9.1	7.7	51.0	30.1
BCI scientists should moderate their enthusiasm when speaking to the media	1.4	12.6	9.8	37.8	38.5
Each BCI scientist should restrict him/herself to discussing current and near-future applications of BCI instead of speculating about long-term applications	3.5	31.9	9.7	36.8	18.1
BCI scientists should actively speak out against inaccurate statements in the media, regardless of the source	0.0	4.2	9.0	47.2	39.6

4. Discussion

We conclude that a majority of BCI scientists agrees to moderate enthusiasm when speaking to the media and to actively check and correct representations in the media whenever needed and/or possible. BCI scientists disagree on whether they should restrict themselves in speaking about what is currently possible or whether it is allowed or desired to speak about visions they have for BCI use in the future. A large majority of scientists agrees that ethical guidelines are needed within the next 5 years. Thus, we would like to encourage further debate among BCI researchers and between the BCI community, media, stakeholders and the community at large. Workshops, online discussions and demonstrations of BCI technology on public events could help develop consensus and standard guidelines.

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References

- Clausen J. Moving minds: ethical aspects of neural motorprotheses. *Biotechnology Journal*, 3(12): 1493-1501, 2008.
- Clausen J. Man, machine and in between. *Nature*, 457(7233): 1080-1081, 2009
- Haselager P, Vlek R, Hill J, Nijboer F. A note on ethical aspects of BCI. *Neural Networks*, 22: 1352-1357, 2009.
- Vlek RJ, Steines D, Szibbo D, Kübler A, Schneider M-J, Haselager P and Nijboer F. Ethical issues in BCI research, development, and dissemination - four case scenarios. *Journal of Neural Engineering*, in review.
- Tamburrini G. Brain to Computer Communication: Ethical Perspectives on Interaction Models. *Neuroethics*, 2(3): 137-149, 2009.