Undergraduate Research Symposium May 18, 2018 Mary Gates Hall

Online Proceedings

POSTER SESSION 2

Commons West, Easel 41

1:00 PM to 2:30 PM

Separating Fact from Fiction: The Ethics of Media Coverage of Brain-Computer Interface Technology

Christopher Michael (Chris) Pham, Senior, Neurobiology
Mary Gates Scholar
Mentor: Frederic Gilbert
Mentor: Sara Goering, Philosophy

The goal of this project is to explore how Brain-Computer Interface (BCI) devices are depicted in the media, especially news media. BCI technology is not new, but it is still very much in its infancy, with few feasible embodiments usable for practical, non-medical applications. Additionally, a majority of BCIs that are (only somewhat) feasible require dangerous invasive surgical procedures. Yet in the last year, the technology has received a higher-than-average level of press coverage. Media coverage of upcoming medical technology is not a trivial issue. Substantial research has shown that positive portrayals of novel medical technology in the media can indirectly affect patient consent to undergo treatment. Consequently, we argue that it is essential that the media reports and discusses the ethical impacts of BCIs. We aim to discover whether media coverage depicts the technology realistically, discussing its shortcomings, risks associated with its use, and ethical issues related to neural implantation. We use a research software called FACTIVA to survey and analyze the depiction of BCI technology inn English-speaking media such as news publications, radio transcripts, press releases, etc. This content analysis allows us to understand mass media values and narratives in three general ways: 1) it generates evidence to demonstrate whether there is any positively-biased and over-enthusiastic depiction of BCI in mass media; 2) it sheds light on whether there is an absence of discussion of risks and ethics associated with BCI technology; and 3) it exposes unrealistic discourse, such as wide-reaching claims of the panacean nature of BCIs (i.e. transhumanist arguments, the race against artificial intelligence, etc.). In brief, this study allows us to explore whether media misrepresentations of BCI could influence the narrative about the technology in ways that may increase the risk of harms for prospective patients and their families.

POSTER SESSION 4

Commons West, Easel 35

4:00 PM to 6:00 PM

A Technology Unlike Any Other: BCIs and the Analogies Used to Understand their Ethical Implications

Sierra Mcdonald Simmerman, Senior, Biology (Molecular, Cellular & Developmental)
Undergraduate Research Conference Travel Awardee
Mentor: Sara Goering, Philosophy
Mentor: Paul Tubig, Philosophy

Brain-Computer Interface (BCI) research is a rapidly growing area of development in biomedicine. As this neurotechnology continues to be developed it is important to address the following question: what is the most appropriate way to conceptualize BCIs from the ethical point of view? This is important to consider because how we understand the device will shape how it is developed and used in ethical discussions. Potential end-users and ethicists while beginning to investigate BCIs have identified nuanced issues specific to BCIs in the areas of privacy, security, identity and intimacy. To understand these issues physicians, scientists, ethicists and patients are conceptualizing BCIs through analogies drawn from both the medical and consumer realm. This has been shown through a comprehensive lit review and analysis of coded focus group discussions with a spinal cord injury group, a non-disabled group and a mixed group. Analogies to medical and consumer technologies, such as the cardiac pacemaker, wheelchair and iPhone, were most commonly drawn from. Although descriptive, these analogies do not fully encompass the nuanced issues presented by BCIs. Drawing on analogies that do capture these nuances could change the direction of our research, miscommunicate risks to patients or change the way we fundamentally understand brains and computers.