

# Shedding light on motor-independent communication

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Propositions accompanying the thesis:

## **Shedding Light on Motor-Independent Communication: fNIRS-based Brain-Computer Interfacing for Everyday Life**

Laurien Nagels-Coune

18<sup>th</sup> of April, 2024

1. Communication is a major determinant of quality of life in locked-in syndrome patients.
2. Despite losing all physical autonomy, appropriate assistive technology can enable mental autonomy in locked-in syndrome patients.
3. Brain-computer interfaces (BCIs) are developed not just because they are an impressive technology that researchers feel potential users should want, but rather because they serve a need. *Indirect quotation of Thompson, 2019, p14*
4. FNIRS-BCI answer encoding paradigms should be straightforward, flexible in terms of sensory modality and be tested across time and environments.
5. A small amount of fNIRS optodes can enable communication, thereby increasing the clinical applicability of an fNIRS-BCI.
6. A localizer run can identify participant-specific channels or even chromophores to be used for answer decoding.
7. In BCI development, user experience should always be considered and reported as end-user acceptance requires more than mere high accuracy.
8. Establishing fNIRS-BCIs as a viable option for communication implicates more patients can potentially find a suitable BCI, as the group of locked-in-syndrome patients is heterogenous.
9. "What's important is not being right. It's to try to understand." *Carlo Rovelli, 2020, back cover book*