

Shedding light on motor-independent communication

Citation for published version (APA):

Nagels-Coune, L. M. J. (2024). *Shedding light on motor-independent communication: fNIRS-based brain-computer interfacing for everyday life*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20240418ln>

Document status and date:

Published: 01/01/2024

DOI:

[10.26481/dis.20240418ln](https://doi.org/10.26481/dis.20240418ln)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy

If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.

Propositions accompanying the thesis:

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

Laurien Nagels-Coune

18th 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*