

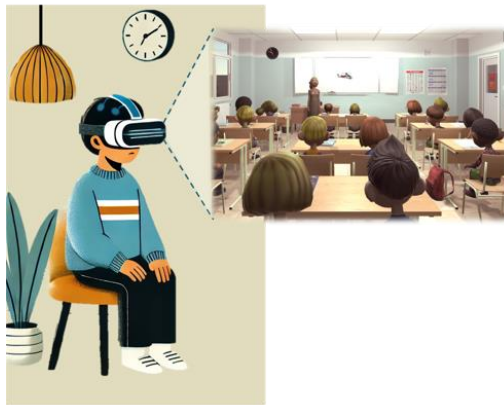
Master project

Location: HUG, CIBM MRI HUG-UNIGE,
Boulevard de la Tour 8, Genève

Dates/Duration: Spring/Fall 2025

Developing a Home-Based Neurofeedback Protocol for Children Using VR and Embedded EEG Technology

This project aims to pilot a home-based neurofeedback (NFB) protocol for children using the Galea VR headset (<https://galea.co>), equipped with an embedded EEG system. The study will leverage a pre-developed VR classroom environment (initially designed for a VR cave) to simulate real-world distractions. The protocol will utilize the traditional theta/beta ratio as a key parameter for assessing and training attentional regulation. By engaging children in interactive tasks within the VR environment, this study seeks to evaluate the feasibility and initial effectiveness of the system in improving attention and focus. The outcomes will provide a foundation for extending this innovative intervention at home to address attention difficulties in pediatric populations.



References

- [1] Guedj C, Tyrand R, Badier E, Planchamp L, Stringer M, Zimmermann MO, Férat V, Ha-Vinh Leuchter R, Grouiller F. [Self-Regulation of Attention in Children in a Virtual Classroom Environment: A Feasibility Study](#) – Bioengineering 2023, 10(12), 1352.
- [2] Guedj C, Planchamp L, Stringer M, Zimmermann MO, Férat V, Tyrand R, Badier E, Ha-Vinh Leuchter R, Grouiller F. [A virtual classroom to help children with attention deficit to regulate their attention](#) – CIBM Annual Symposium 2022.
- [3] Guedj C, Planchamp L, Stringer M, Zimmermann MO, Tyrand R, Badier E, Férat V, Ha-Vinh Leuchter R, Grouiller F. [Self-regulation of attention in children in a virtual classroom environment: A feasibility study](#) – Organization for Human Brain Mapping Meeting, Montreal, 2023.

Supervisor

- **Main Supervisor:** Carole Guedj, CIBM MRI HUG-UNIGE, [Carole Guedj - CIBM | Center for Biomedical Imaging](#), carole.guedj@unige.ch
- **Co-Supervisor:** Frédéric Grouiller, CIBM MRI-HUG UNIGE, [Frédéric Grouiller - CIBM | Center for Biomedical Imaging](#), frederic.grouiller@unige.ch
- **Collaborators:** Emmanuel Badier, Brain and Behaviour Laboratory, Swiss Center for Affective Sciences, [Virtual Reality - Brain and Behaviour Laboratory - UNIGE](#), Emmanuel.badier@unige.ch
- **Collaborators:** Russia Ha-Vinh Leuchter, [Division of Development and Growth](#), Geneva University Hospitals, russia.ha-vinhleuchter@hug.ch

Skills

Qualifications, previous experience and background:

- Basic knowledge of EEG and neurofeedback principles.
- Interest in pediatric populations and attention-related interventions.
- Programming experience with tools like Python or MATLAB for EEG data analysis is a plus.

How to apply: Please send your CV and motivation letter to the main supervisor: carole.guedj@unige.ch

About CIBM

The CIBM Center for Biomedical Imaging was founded in 2004 and is the result of a major research and teaching initiative of the partners in the Science-Vie-Société (SVS) project between the Ecole Polytechnique Fédérale de Lausanne (EPFL), the Université de Lausanne (UNIL), Université de Genève (UNIGE), the Hôpitaux Universitaires de Genève (HUG) and the Centre Hospitalier Universitaire Vaudois (CHUV), with the generous support from the Fondation Leenaards and Fondation Louis-Jeantet.

CIBM brings together highly qualified, diverse, complementary and multidisciplinary groups of people with common interest in biomedical imaging.

We welcome you in joining the CIBM Community.

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