

Master project

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

Dates/Duration: Spring/Fall 2025

Building an EEG Database of Neurotypical Children to Identify Neural Biomarkers of Attention

This pilot project focuses on creating an EEG database to explore neural biomarkers of attention in neurotypical children. Thirty children (aged 6-10 years or 10-12 years) will participate in the study, which involves both resting-state and task-based EEG recordings. These tasks will assess different aspects of attention, including sustained attention, selective attention, and cognitive flexibility. By employing machine learning techniques, the project aims to identify reliable neural patterns associated with attention, paving the way for personalized interventions in future studies.



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:** Russia Ha-Vinh Leuchter, [Division of Development and Growth](#), Geneva University Hospitals, russia.ha-vinhleuchter@hug.ch

Skills

Qualifications, previous experience and background:

- Basic understanding of EEG recording and analysis.
- Interest or experience in machine learning applications in neuroscience.
- Familiarity with programming tools like Python or MATLAB.
- Strong analytical and organizational skills.

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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