

Two postdoctoral positions and one Engineer position in Lyon1 University: General context and aim

The LIBM (Laboratoire Interuniversitaire de Biologie de la Motricité - University Claude Bernard Lyon 1, France) recruits an engineer and two postdoctoral fellows for the ANTEPULSIO project. ANTEPULSIO is a R&D project that aims to develop and commercialize two new applications for a better understanding of human anatomy by both students (medical and allied health professions) and patients. The first application called ANTEPULSIO Student will assist students while they learn human anatomy. The second called ANTEPULSIO Coaching will be used by healthcare professionals and their patients to inform them and better understand the nature of their injury. ANTEPULSIO gathers 4 partners, 3 companies and the LIBM. Our mission is to accompany the applications development by providing the pedagogical and clinical scenarios. In an agile development process, we test the prototypes and provide the developers a user's feedback in order to optimize the applications. Finally, we experimentally validate (e.g. face, content, construct...) the applications with behavioral (e.g. eye-tracking) and neurophysiological (e.g. electroencephalography) paradigms.

This development requires the use of 3D real-time technologies simulating real biomechanical behavior of musculoskeletal tissues. The use of 3D techniques is related to the role of visual attention during anatomy learning and is scientifically approved. Spatial ability refers to an individual's propensity to observe an object and understand how it might be manipulated by the mind. Our lab has provided evidence that persons with higher spatial ability excel in visually rich environments like anatomical sciences learning. We also found that patients with high spatial ability can more easily use motor imagery, a therapeutic method enhancing rehabilitation. We also demonstrated the efficiency of 3D multimedia in learning anatomy.

You can find below more detailed information about the 3 calls for applications. Please, send your CV and motivation letter related to one of the 3 positions to Dr. Nady Hoyek (nady.hoyek@univ-lyon1.fr)

Keywords:

Human Anatomy, Rehabilitation, Real-time 3D, Eye-tracking, Spatial Ability, Applications, Multimedia

Engineer position (12 months)

Missions :

- Integrating the pedagogical and artistic direction to participate in user interface (UI) and user experience (UX) conception.
- Measuring participants' ocular movement (fixation and saccades) using eye-tracking device in order to evaluate the applications' usability and functionality.
- Providing feedbacks about users' visual strategies to the developers in order to enhance the applications.
- Helping and assisting the postdoctoral fellows in their respective experimental paradigms by coupling behavioral (e.g. eye-tracking, reaction and movement time) and neurophysiological (e.g. electroencephalography, electrodermal activity) data.
- Participating to the ANTEPULSIO steering committee and writing the meeting reports.

Required qualifications :

Engineer diploma or Ph.D. in neurosciences, cognitive psychology, computer science, human-computer interaction or any closely related field. Research experience in one of the above-mentioned fields and knowledge in human anatomy is expected.

Compensation :

Starting gross salary 2461€/month; commensurate with qualifications and experience.

Tentative dates

Application period: from November 2018 until end of January 2019.

Job Duration: 12 months

Starting date: as early as possible

Postdoctoral position 1 : ANTEPULSIO Coaching

Clinical research (12 months)

Missions:

- Analyzing the “e-health” state of art related to the use of digital tools in functional rehabilitation.
- Analyzing healthcare professional needs regarding the use of ANTEPULSIO Coaching and provide clinical scenarios for the application.
- Selecting the right objective and subjective clinical variables to integrate into ANTEPULSIO Coaching development.
- Conducting clinical experiments with the aim to validate the usefulness of the ANTEPULSIO Coaching.
- Writing and submitting scientific papers.
- Participating to the ANTEPULSIO steering committee and writing the meeting reports.

Required qualifications:

Ph.D. in public health, physiotherapy, neurophysiology, neurosciences, cognitive psychology, or any closely related field with experience in experimental and clinical research in the above-mentioned fields. Knowledge in human anatomy especially in musculoskeletal injuries is expected.

Compensation:

Gross salary range 2320€ - 4606€/month; commensurate with qualifications and experience.

Tentative dates

Application period: from November 2018 until end of January 2019.

Job Duration: 12 months

Starting date: as early as possible

Postdoctoral position 2 : ANTEPULSIO Student

Neuroscience and education (12 to 24 months)

Missions:

- Analyzing the state of art related to mental processes in anatomy learning: spatial ability (e.g. mental rotation, spatial perception and orientation...), mental workload, visual attention, embodiment, etc.
- Analyzing the state of art related to the use of digital tools in anatomy learning.
- Conducting experimental paradigms combining both eye-tracking, electroencephalography and autonomic nervous system activity to monitor physiological state and cognitive effort during anatomy learning with ANTEPULSIO Student.
- Selecting the right objective and subjective educational variables to integrate into ANTEPULSIO Student development.
- Writing and submitting scientific papers.
- Participating to the ANTEPULSIO steering committee and write the meeting reports.

Required qualifications:

Ph.D. in neurophysiology, neuroscience, cognitive psychology, kinesiology, educational sciences or any closely related field with experience in experimental educational research in the above-mentioned fields. Knowledge in human anatomy and its teaching is desired.

Compensation :

Gross salary range 2320€ - 4606€/month; commensurate with qualifications and experience.

Tentative dates

Application period: from November 2018 until end of January 2019.

Job Duration: 12 to 24 months

Starting date: as early as possible