

12 months postdoctoral position in human movement biomechanics

The biomechanics and impact mechanics laboratory (LBMC: <https://lbmc.univ-gustave-eiffel.fr/>) is looking for a postdoctoral fellow to work on motion capture and analysis for high-level sports applications, in particular sport climbing.

The engineer will be involved in the PerfAnalytics project's team. This project aims at objectifying performance using in situ video analysis. This collaborative project involves 9 research teams and 5 sports federations (boxing, BMX, gymnastics, climbing, and wrestling).

Within this project, the research engineer will be involved in the development and validation of methods to estimate relevant biomechanical variables (based on kinematics and kinetics). A specific focus will be placed on sport climbing to estimate the contact forces between the climber and the holds. This will be fulfilled thanks to collaboration with the project partners, in particular the GIPSA lab in Grenoble which is hosting an instrumented climbing wall.

More specifically, the objectives will be to:

- Develop biomechanical models and methods to be used in the force estimation problem;
- Develop experimental methods allowing these models to be personalized with the lightest possible experimental constraints;
- Develop research protocols to collect the necessary data (model customization, training, and evaluation);
- Participate in the motion capture experiments carried out as part of the project with the various sports federations and, more particularly, in the collection of data dedicated to the problem of force estimation in collaboration with the GIPSA laboratory;
- Participate in the dissemination of results.

Requirements:

- M.Sc. in mechanical or biomechanical engineering;
- Experience in human motion analysis;
- Programming (e.g. Python, Matlab);
- Excellent communication skills;
- French is a plus for the experiments.

Complementary information:

- starting date: as soon as possible;
- working place: [LBMC](#), Lyon, France.

Candidates should send a cover letter, CV, and contact information for references by email to thomas.robert@univ-eiffel.fr, raphael.dumas@univ-eiffel.fr, and antoine.muller@univ-lyon1.fr.