



## Call for application

# Postdoctoral position

**PROJECT AIM** | The postdoctoral researcher will develop methods and tools to analyze data related to physical activity measurement, particularly data recorded by different physical activity monitors (GPS, accelerometer, heart rate monitor) with the specific aim of studying walking activity. The postdoctoral researcher will work at the interface between a number of research projects for which database are either already available or for which data are under collection. One of the final aims is to contribute significantly to the **conception of a solution to assess walking capacity during free-living conditions in patients with walking impairment**. This requires finding appropriate methods to process signals provided by physical activity monitors but also to develop an interface to efficiently analyze this data and appropriately communicate results (to the patient, the doctor, the researcher). The different aims will be defined and prioritized according to the total duration of the postdoctoral position. However, the availability of a number of pre-processed data from different database should contribute to the definition of an ambitious publication plan for the postdoctoral researcher.

**PERIOD & DURATION** | From January 2019; Duration: 6 to 24 months according to the final funding. Six months of funding are already secured. Another funding application is on-going.

**SALARY** | 2500 €/month including social costs (net salary ~2000 €).

**SCIENTIFICS FIELDS** | Health and life sciences: signal processing applied to exercise physiology and human movement.

**MAIN SETTING** | *Ecole normale supérieure de Rennes* and *Movement, Sport and health Sciences laboratory (M2S)*. Campus de Ker Lann - Avenue Robert Schuman - 35170 Bruz. FRANCE.

### EXECUTIVE STAFF

*Supervisor and scientific manager*. Alexis Le Faucheur (MCF-HDR). Ecole normale supérieure de Rennes, département Sciences du sport et éducation physique. Laboratoire Mouvement, Sport, Santé (M2S). EA 1274. Bruz. FRANCE.

*Co-Supervisor and co-scientific manager*. Guy Carrault (Full Professor). Laboratoire Traitement du Signal et de l'Image (LTSI). Unité Mixte de Recherche Inserm. Université de Rennes 1. Rennes. FRANCE.

**PROFILE OF THE APPLICANT** | The candidate must have a PhD degree. The candidate needs to have spent a period abroad (outside France) of at least 18 months during the last three years (criterion to be eligible to the on-going funding application). The applicant must have strong skills in signal analysis (detection theory, segmentation and classification methods). An interest for, and a previous experience in exercise physiology will be valued.

**SCIENTIFIC & WORK ENVIRONMENT |** The postdoctoral position will take place at the *Ecole normale supérieure de Rennes* (ENS Rennes) and at the “*Movement, Sport and health Sciences*” laboratory (M2S). Both are located on the university campus of *Ker Lann*, some 20 minutes from Rennes city center. ENS Rennes is a prestigious public institution of higher education and research and one of the major French *Grandes Écoles* which are considered to be the pinnacle of the French higher education ([www.ens-rennes.fr](http://www.ens-rennes.fr)). M2S laboratory was recently included in the Shanghai Ranking's Global Ranking of Sport Science Schools and Departments. By combining biomechanical, physiological and biological approaches, M2S develops knowledge for a better understanding of the effects of physical activity and sports on health and performance ([www.m2slab.com](http://www.m2slab.com)).

**LIVING ENVIRONMENT |** Rennes, with more than 220 000 residents, is the capital city of Brittany (1h30 from Paris by train). The economic dynamism and cultural attractiveness of the town has made that Rennes was recently classified among the top French towns where a great place to live, work and start a company. The median rent is 12€/m2 in the city center.

**DEADLINE FOR APPLICATION |** June, 29. 2018

**APPLICATION FILE AND CONTACT |** Please send CV, cover letter (in English or French) and PhD certificate to [alexis.lefaucheur@ens-rennes.fr](mailto:alexis.lefaucheur@ens-rennes.fr)

#### REFERENCES & LINKS |

- de Müllenheim PY, Chaudru S, Emily M, Gernigon M, Mahé G, Bickert S, Prioux J, Noury-Desvaux B, Le Faucheur A. Using GPS, accelerometry and heart rate to predict outdoor graded walking energy expenditure. *J Sci Med Sport*. 2018 Feb;21(2):166-172. doi: 10.1016/j.jsams.2017.10.004. Epub 2017 Oct 13. PubMed PMID: 29110991.
- de Müllenheim PY, Dumond R, Gernigon M, Mahé G, Lavenu A, Bickert S, Prioux J, Noury-Desvaux B, Le Faucheur A. Predicting metabolic rate during level and uphill outdoor walking using a low-cost GPS receiver. *J Appl Physiol* (1985). 2016 Aug 1;121(2):577-88. doi: 10.1152/jappphysiol.00224.2016. Epub 2016 Jul 8. PubMed PMID: 27402559.
- Le Faucheur A, Abraham P, Jaquinandi V, Bouyé P, Saumet JL, Noury-Desvaux B. Measurement of walking distance and speed in patients with peripheral arterial disease: a novel method using a global positioning system. *Circulation*. 2008 Feb 19;117(7):897-904. doi: 10.1161/CIRCULATIONAHA.107.725994. Epub 2008 Feb 4. PubMed PMID: 18250268.
- [www.ens-rennes.fr](http://www.ens-rennes.fr)
- [www.m2slab.com](http://www.m2slab.com)
- [www.ltsi.univ-rennes1.fr](http://www.ltsi.univ-rennes1.fr)
- <https://shepam.cominlabs.u-bretagne-normandie.fr/fr/presentation?sessionid=02DF6A70F96F707A3E1B61F28B2DFA5>



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