

## Hosting offer for Marie Skłodowska-Curie Postdoctoral Fellowships (PF) 2022 at University of Antwerp/research group MOVANT

[MSCA Postdoctoral Fellowships](#) are individual research grants offering excellent postdoctoral researchers the chance to develop their skills by means of international mobility. Through the implementation of an original and personalised research project, MSCA Postdoctoral Fellowships aim to foster excellence through training and mobility and to equip researchers with new skills and competences in order to identify solutions to current and future challenges.

Research group MOVANT (University of Antwerp) invites motivated postdoctoral researchers to jointly prepare an application for the [MSCA-PF-2022 call Marie Skłodowska-Curie Postdoctoral Fellowships call \(MSCA-PF-2022\)](#) with them as host organisation.

### **Description of Hosting organisation/group**

Website: <https://www.uantwerpen.be/en/research-groups/movant/>

The central research theme of MOVANT is rehabilitation and movement. Our research is clustered into 3 focus domains (MetaMove – Movement & Metabolic processes, MoveAdapt – Movement & Adaptation, MoveMe – Movement & Measurement), each with strong affinity for rehabilitation, movement and improvement of quality of life, studied from different angles: prognostic, diagnostic, interventional, mechanistic, technological, etc.

Within these three focus domains, different disorders are studied with regards to the musculoskeletal system (e.g. neuromotor disorders, chronic shoulder complaints, chronic low back pain, temporomandibular disorders, pelvic floor disorders, osteoarthritis, etc.), the metabolism (e.g. diabetes, obesity, etc.), the vestibular system (e.g. bilateral vestibulopathy, vestibular deficit, chronic dizziness, etc.), the cardiovascular system (e.g. stroke, heart failure, cardiorespiratory training, lymphedema, etc.), the respiratory system (e.g. lung rehabilitation, cardiorespiratory fitness, etc.), skin and connective tissue (e.g. burns, surgical scars, etc.), oncology (e.g. breast cancer, pain, fatigue, etc.), the nerve system (e.g. chronic pain, tinnitus, potty training problems, maturation of the nerve system, etc.).

Within these focus domains, research is performed in different populations: healthy subjects and patients with disorders, children – adults – elderly, specific target groups (e.g. artists, athletes, heavy duty occupations, women in the postnatal period, ...), etc.

Our research is performed in our three state-of-the art laboratories

(<https://www.uantwerpen.be/en/research-groups/movant/research/about-movant/movant-labs/>):

- M<sup>2</sup>OCEAN: In the movement analysis lab, the movement pattern of different (patient) populations can be characterized. A combination of kinematic data with force measurements and muscle activation patterns provides a complete image of the progress and control of movement. The infrastructure consists of an automated camera system consisting of 8 infrared cameras, a wireless EMG system (16 channels), 4 force plates, an instrumented treadmill, and the software for the processing of the data of the movement analysis (Vicon Nexus). In order to be able to perform movement analysis in difficult to reach (patient)

populations, the lab also has equipment to perform movement analysis at location: X-sense Motion Capture, Wii balance board, Optojump, a portable EMG system, a portable ultrasound, GaitUp, Optogait. We also have specialized apparatus to measure movement of the extremities (Fastrack) and to perform power measurements (electronic MicroFET 2 handheld dynamometer).

- M<sup>2</sup>RUN: In the exercise physiology and metabolic lab, we can comprehensively measure the energy metabolism at rest and during exercise. As such we can study the effect of lifestyle (e.g. nutrition, training, etc.) on the energy and muscle metabolism in different (patient) populations. The lab consists of a respiration room for performing indirect calorimetry (golden standard for energy metabolism measurements) and a Bodpod air plethysmograph for measuring body composition.
- M<sup>2</sup>SENS: In the sensoric functioning lab, we are able to perform experimental pain measurements. Through different Quantitative Sensory Tests, the peripheral and central pain processing and modulation can be characterized to be able to identify underlying pain mechanisms (nociceptive pain, neuropathic pain or nociplastic pain) in different (patient) populations. The lab consists of a Q-sense CPM to measure endogenous pain inhibition, a cold pressor bath and thermorollers to measure cold and heat hyperalgesia, a TSA2 as golden standard to measure the objective response to induced pain, and different clinical tools to evaluate hypo- or hyperesthesia, mechanic hyperalgesia, and temporal summation (e.g. pressure algometers, thermorollers and monofilaments). A number of specific instruments are present (NeckCare<sup>®</sup> measuring unit for measuring cervical sensorimotor control in patients with dizziness, an MRI-compatible micro piezo-electric stimulator device to generate vibrations, as well as wireless VR devices to customize patient assessment and treatment).

### Topics/expertise

We welcome topics in each of our three focus domains, or in the overlap between these focus domains:

- MoveMe: Movement & Measurement – Measuring, quantifying and improving movement and motor control (Key-words: biomechanics, technology assisted rehabilitation, motor control, functional and clinical assessment of movement)
  - Measuring and quantifying the biomechanics of movement in healthy subjects and patients with movement related disorders through technical evaluations or functional tests.
  - Understanding motor control and its effect on movement outcome in healthy subjects and patients with movement related disorders.
  - Applying increasing knowledge on biomechanics and motor control for improving and practicing functional and clinical assessment of movement in patients.
  - Influencing movement related disorders through focused and possibly technology assisted rehabilitation.
- MoveAdapt: MoveAdapt – Movement & Adaptation – Measuring and improving adaptation (Key-words: Input-processing-output, biopsychosocial framework, sensoric-motoric-cognitive/perceptive disorders)
  - Screening, assessment and evaluation of adaptation processes in a biopsychosocial way by using comprehensive tools (including ICF, sPROMS, technical evaluations)
  - Studying mechanism of adaptation processes following the input-processing-output framework (e.g. coping mechanisms)

- Improving management (treatment and prevention) of patients with disorders in adaptation processes (input-processing-output)
- MetaMove: Movement and metabolic processes – measuring and unraveling the role of metabolic processes, muscle & skin adaptation and blood & lymph vessels in functioning in health and disease (Key-words: Metabolism, Inflammation, Muscle and skin adaptation, Lifestyle, Body composition, blood and lymph vessels)
  - Measuring energy metabolism & body composition in relation to sports, movement and nutrition in healthy subjects and patients.
  - Studying inflammation and other metabolic processes in relation to sports, health and general functioning.
  - Studying muscle and skin adaptation in relation to sports, health and general functioning.
  - Studying blood and lymph vessels in relation to sports, health and general functioning

### **Your profile**

- Affinity and/or experience with at least one of three MOVANT focus domains.
- PhD in Medical Sciences, Rehabilitation Sciences, Movement Sciences, Biomedical Sciences, or equivalent
- You must have a completed PhD at the time of the call deadline (14 September 2022).
- Candidates must have a maximum of 8 years full-time research experience from the PhD award date until September 14, 2022. Periods of inactivity in research (e.g. unemployment, periods of employment outside research, parental or sick leave) do not count towards the time of research experience.
- For European fellowships, candidates can be of any nationality and must not have resided or carried out their main activity (work, studies, etc.) in Belgium for more than 12 months in the 36 months immediately before September 14, 2022.
- Highly motivated candidate with an excellent research track record appropriate to career stage, as evidenced by academic publications and other scientific output.

### **What we offer**

- Support and guidance for the preparation of your MSCA PF proposal
- A stimulating, interdisciplinary environment for high-level research.

### **How to apply?**

Indicate your interest by contacting the host institution as follows:

Please contact Dr. Lies Durnez (research coordinator MOVANT) by e-mail with a short CV and motivation to indicate your interest to prepare a MSCA-PF application. She will match you with a potential supervisor (<https://www.uantwerpen.be/en/research-groups/movant/organisation/members/>)

After the supervisor agrees to support you as a MSCA-PF candidate, you can start preparation of MSCA PF project proposal and will be supported further by the supervisor and the Research Support Office of the host university.

For more information on the MSCA PF scheme or the host institution, you can contact the MSCA coordinator of the University of Antwerp: Dr. Liesbet Cockx (Research, Innovation & Valorisation Antwerp, Grants Office): [Liesbet.cockx@uantwerpen.be](mailto:Liesbet.cockx@uantwerpen.be).