Postdoctoral fellowship on predictive simulations to inform personalized rehabilitation programs for knee OA patients

Ref. BAP-2021-785

The Human Movement Biomechanics research group is one of the leading groups worldwide that pioneers in silico approaches to study movement dysfunction and support clinical decision making. Ilse Jonkers is head of the cartilage mechanobiology research line that aims to unravel the relation between joint movement, musculoskeletal loading and joint homeostasis and disease. Her work fully exploits the use of highly detailed image based musculoskeletal modeling approaches in combination with multi-scale simulations to predict in-vivo cartilage repair and degeneration. Using these model-based insights she aims to inform rehabilitation strategies effective in altering the mechanical environment of the joint and thereby affecting disease progression.

https://gbiomed.kuleuven.be/english/research/50000737/groups/HMB

Responsibilities

Within the current project, we are looking for a junior postdoctoral fellow who can take the lead in developing and integrating the use of predictive simulations (e.g., using OpenSim Moco) to identify movement strategies that reduce knee joint loading during different rehabilitation exercises (e.g., walking, squatting) with a focus on OA and ACL-reconstructed patients.

It is our ultimate ambition to integrate these predictive simulations with IMU-based approaches for real-time feedback during rehabilitation.

This work is part of an international collaborative project with the University of Laval and University de Sherbrook. It also lies at the heart of a strong multi-disciplinary research collaboration within KU Leuven (Bryce Killen, Friedl De Groote and Sabine Verschuren) and UZ Leuven (Rik Lories and Kurt De Vlam).

Profile

The ideal candidate

- Holds a PhD degree in mechanical or biomedical engineering that focused on the development of simulation or modeling tools for studying musculoskeletal systems and locomotion.
- Has a strong interest in method development
- Has expertise and knowledge of OpenSim API, or comparable platforms - Expertise and knowledge of OpenSim Moco is an asset
- Has an excellent CV and is willing to apply for personal fellowships together with the PI
- Is a team player and willing to co-supervise PhD and masters students working on different aspects of the project.

Offer

The current fellowship will be offered for one year but can be extended with one year upon positive evaluation and after application for a personal fellowship with the relevant funding bodies.

Starting date is negotiable but ideally March 2022

Interested?

For more information please contact Prof. dr. Ilse Jonkers, tel.: +32 16 32 91 05, mail: ilse.jonkers@kuleuven.be or Mr. Bryce Killen, tel.: +32 16 32 11 63, mail: bryce.killen@kuleuven.be.

You can apply for this job no later than January 15, 2022 via the online application tool :

http://www.kuleuven.be/eapplyingforjobs/light/60073195

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