Control Engineer Postdoc

The R&D Team of ABLE Human Motion is currently seeking a **Control Engineer with a PhD degree** to work on new control strategies to adapt the software of the exoskeleton for community and home use.

Robotic exoskeletons are an emerging technology with the potential to assist people with lower-limb paralysis in everyday life activities, like walking outdoors and enjoying leisure time in the community and at home. However, the high cost, weight and limited performance in real-world environments of current devices restrict their use to only clinical settings. The objective of this project is to adapt the software of the current ABLE Exoskeleton (designed for clinical use) to the challenges of real-world non-controlled environments, facilitating its use in the community and at home. Daily activities like walking in uneven terrains, climbing and descending stairs and slopes, and ambulating in narrow spaces will be envisioned with this new lower-limb exoskeleton.

Your Tasks.

» Develop and deploy **advanced feedback control algorithms** to actively assist in the user's balance.
» Develop **new functionalities to achieve independent community mobility** (stairs, slopes, curves).
» Develop **adaptive control algorithms** to automatically adjust the level of assistance at each joint to the needs of each individual.
» Implement **safety algorithm layers** to ensure safe operation.
» **Test** the safety and performance of the **developed functionalities** with healthy people, and later with individuals with lower-limb impairments.
» **Diagnostic and troubleshooting** of bugs and technical problems.

Required qualifications.

» **PhD degree in Control and Automation Engineering, Robotics** or related.
» Experience developing, debugging and optimizing **real-time software**.
» Understanding of **biomechanics and human locomotion**.
» Experience with **signal processing, pattern recognition & statistical modelling**.
» Experience with **Raspberry Pi and Arduino** platforms.
» **Motivated and proactive** with the ability to work independently.

» **High-performer**, being able to get things done in a fast-paced atmosphere.
» Proficiency in written and oral English.

Preferred qualifications.

» "Maker" and **"DIY" mentality**, enjoying building your own engineering projects.
» Previous experience in the field of Rehabilitation Robotics.
» Previous experience with "Assistance-as-Needed (AAN)" control strategies.
» Written and oral Spanish, if possible.

What can we offer you?

» Be part of **one of the most promising healthcare companies** in Europe.
» Join a **young and passionate team willing to change the world**, where everybody has a voice.
» **Flexible working hours**: we work for objectives, balancing work and personal life, with the option of doing telework.
» **Full-time indefinite contract of employment**.
» **Competitive compensation** according to your experience.

Other information.

» **Office work in Barcelona**, Spain.
» Expected incorporation in **December 2022**.
» **Job subject to receiving funding from the Spanish Ministry of Science and Innovation** (Torres Quevedo Grant 2021 call).
» **Apply by sending an email to hello@ablehumanmotion.com** attaching your CV with the subject "Control Engineer Postdoc".