Horizon 2020
Marie Sklodowska Curie Actions
PROFILE FORM – Expression of Interest

<table>
<tr><td>Organization Name / Department</td><td>PONTIFICIA UNIVERSIDAD CATÓLICA ARGENTINA / FACULTAD DE INGENIERÍA Y CIENCIAS AGRARIAS
Biomechanics and Health-Engineering Laboratory</td><td>Organization Short Name</td><td>LaBIS-UCA</td></tr>
<tr><td>Organization Type</td><td colspan="3">☒ University
☐ Public Research Centre
☐ Large Scale Enterprise
☐ Small and Medium Scale Enterprise
☐ Public Body
☐ International NGO
☒ National NGO</td></tr>
<tr><td>Research Fields</td><td colspan="2">☐Chemistry CHE
☐Social and Human Sciences SOC
☐Economic Sciences ECO
☒Information Science and Engineering ENG
☐Environment and Geosciences ENV
☐Life Sciences LIF
☐Mathematics MAT
☐Physics PHY</td><td><u>Sub-Fields / Keywords:</u>

Biomechanics
Health Engineering
Electronic Engineering
Biomedical Engineering
Human Motion and Balance Assessment</td></tr>
<tr><td>Short Description of the Organization / Department</td><td colspan="3">LaBIS is a research group created in 2009 within the School of Engineering and Agricultural Sciences of the Pontifical Catholic University of Argentina (UCA). Its field of expertise centers on human balance assessments, based on novel, interdisciplinary perspectives on this subject (engineering, design, medical sciences). The development of dedicated motion-sensing solutions allows providing repeatable, reliable measures of performance to well-known clinical assessments of risk of falls (older adults and balance-compromised populations), as well as implementing specific protocols for the evaluation of optimal performance (sports, ballet and other disciplines).</td></tr>
<tr><td>Previous Related Projects / Research Experience</td><td colspan="3">Since its creation, LaBIS has focused on the field of human-balance assessment, gaining experience and knowledge on the many aspects of this subject, and with a sustained participation in scientific programs in this field through the years. Similarly, the laboratory has dedicated to human resources development in the field of research (PhD theses, undergraduate degree projects).

Currently, the laboratory takes part in the following research programs:
- Biomechanical Models and Development of Novel Devices for the Assessment of Human Balance in Normal and/or Dysfunctional Subjects (UCA).
- Comprehensive Evaluation and Advanced Characterization of Dynamic and Static Human Balance in Older Adults (University of Buenos Aires, in collaboration with UCA).

The research experience acquired by the group has derived in scientific publications, involving signal processing results from the evaluation of risk of falls in the elderly, as well as covering the development of novel devices and strategies for the analysis of motion, both in humans and in structures. Details on these publications can be found in:
http://www.uca.edu.ar/index.php/site/index/es/uca/facultad-de-ingenieria-y-ciencias-agrarias/nuestra-facultad/laboratorio-de-biomecanica-e-ingenieria-para-la-salud/publicaciones/

Previous funding mechanisms and projects are listed in the following link:
http://www.uca.edu.ar/index.php/site/index/es/uca/facultad-de-ingenieria-y-ciencias-</td></tr>
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	agrarias/nuestra-facultad/laboratorio-de-biomecanica-e-ingenieria-para-la-salud/proyectos-acreditados/
Short Description of the Project idea (if foreseeable)	LaBIS carries forward various research lines, focused on the different aspects of human balance assessment, both in static and dynamic conditions, and for a wide range of populations. The main steps associated to this project involve the following tasks: - Development of novel prototypes, dedicated to the quantitative evaluation of human balance (dedicated electronics and sensors, printed circuit-board design and signal acquisition and conditioning). - Definition of protocols related to human-balance assessment, incorporating these devices. - Application of signal-processing strategies, related to these specific devices and protocols. - Experimental setup and acquisition of signals within these protocols. - Validation of proposed measures of performance. - Simulation of biomechanical models. Based on this research, the laboratory also pursues the following objectives: - Transfer of acquired research knowledge to students and subjects. - Participation in Seminars, Congresses, Meeting, Workshops.
Related Call	It is within the interest of the group to strengthen the participation of professionals and students in the field of Electronic / Electromechanical Engineering, as well as Biomedical Engineering, with an interest and expertise in the development of research prototypes involving new technologies and sensors (for example, MEMS sensors), as well as in the application of novel signal processing strategies. All actions.
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