MSCA Postdoctoral Fellowships:
Proposal writing bootcamp at FEUP
Postdoctoral Fellowship
Marie Skłodowska-Curie Actions
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SUPERVISOR INFORMATION	
First and Last name	Eliana Silva
URL of supervisor webpage	https://orcid.org/0000-0003-2003-0488
Department	Informatics Engineering Department
Field(s) of research	Serious games; Co-design; Cognitive Rehabilitation; Artificial Intelligence

PROJECT PROPOSAL	
Title (optional)	Design and development of a serious game for cognitive and psychosocial rehabilitation
Brief project description	

Acquired Brain Injury (ABI) is a non-degenerative, non-congenital and non-hereditary brain disorder with a significant global impact across all age groups and is a major public health concern. Common causes include stroke and traumatic brain injury, often caused by road traffic accidents and falls. These injuries have significant physical, cognitive and psychosocial consequences and are associated with an increased risk of neurodegenerative disease. Spontaneous recovery from cognitive impairment is typically limited and pharmacological interventions have shown low efficacy. Rehabilitation programs play a critical role in addressing these challenges. However, traditional hospital-based therapies are intensive, monotonous and burdensome for patients, families and healthcare systems, often resulting in high dropout rates and significant socioeconomic costs. These limitations underscore the need for innovative approaches, using recent advances in serious games and artificial intelligence. The project aims to improve cognitive and psychosocial rehabilitation by developing a novel system based on serious games with social, collaborative and competitive features. Key innovations include a natural, multimodal and user-adaptive interface, an intelligent planner for personalized therapy plans, a system of virtual agents that allows gameplay at any time, and a multi-agent game balancing mechanism to maintain engaging and motivating experiences throughout rehabilitation. It is expected to improve cognitive rehabilitation programs by making them more personalized, engaging and effective in promoting functional independence and social reintegration. It promises to reduce the socio-economic burden on families and healthcare systems by providing more motivating and cost-effective rehabilitation solutions in both the short and long term.