



PhD in BIOINGEGNERIA / BIOENGINEERING - 37th cycle

THEMATIC Research Field: DEFINITION AND DEVELOPMENT OF TELE-MEDICINE AND TELE-REHABILITATION METHODS FOR PATIENTS WITH COGNITIVE AND MOVEMENT DISABILITIES

Monthly net income of PhDscholarship (max 36 months)

€ 1250.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

The aim of the project is the development of a technological platform able to integrate the different components of rehabilitation needs, such as motor ones, in a context of low-cost care continuity services through applications of tele-medicine and tele-rehabilitation. The research intends to integrate, in an immersive reality context consisting of exergames for cognitive-motor rehabilitation, complementary technologies for the use of rehabilitation treatments and above all for the automatic validation of their correct execution, in accordance with the medical assessment standards currently in use or to be defined by teams of specialists in the sector.

Methods and techniques that will be developed and used to carry out the research

The project will be developed mainly in collaboration with Ospedale San Giuseppe, Istituto Auxologico Italiano, specifically with the Neurological and orthopaedic Rehabilitative Medicine units. The methods developed will allow to objectively and automatically quantify the human body movement during the execution of some traditional motor assessment tasks, related to upper limbs, lower limbs and total body in specific pathological conditions. A combined approach of vision-based systems, Computer Vision techniques, optoelectronics systems and Machine Learning methods will be adopted to reach this aim.

Educational objectives

The PhD student will have the opportunity to learn



	processes and approaches in the field of telemedicine and telerehabilitation in a multidisciplinary context (bioengineers, information engineers, neurologists, psychiatrists, etc.)
Job opportunities	The PhD student will have the opportunity to create a background related to technologies for telemedicine and telerehabilitation with skills useful in another clinical context or in an industrial context.
Composition of the research group	2 Full Professors 2 Associated Professors 1 Assistant Professors 1 PhD Students
Name of the research directors	VERONICA CIMOLIN

Contacts	
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	566.36 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
The PhD student will have a desk at Politecnico and at Istituto Auxologico Italiano. Some training courses and activities will be planned together with the participation to national and international



conference and events. Opportunities in terms of teaching activities and support to students for the realisation of thesis will be considered.

Increase in the scholarship for stays abroad
? 566,36 per month, for up to 6 months