

PhD in BIOINGEGNERIA / BIOENGINEERING - 40th cycle

THEMATIC Research Field: ADVANCED TECHNOLOGICAL SOLUTIONS IN CLINICAL ENGINEERING TO ENHANCE CLINICAL DIAGNOSIS OF MELANOMA WITH ARTIFICIAL INTELLIGENCE

Monthly net income of PhDscholarship (max 36 months)		
€ 1400.0	ĺ	
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	In the rapidly evolving healthcare landscape, innovation is crucial in improving patient outcomes, enhancing efficiency, and driving cost-effectiveness. Clinical engineering is at the heart of this innovation, a multidisciplinary field that bridges the gap between medicine and engineering to optimize medical technology and equipment use in healthcare settings. In the last years, development of advanced image analysis technologies by leveraging the potential of videodermatoscopy and artificial intelligence is in progress at Spedali Civili Hospital in Brescia. These methodologies can enhance the accuracy and efficiency of early screening, facilitating timely diagnoses and targeted interventions. The research in the field of oncological dermatology aims to address the rising incidence of melanoma, one of the most aggressive forms of skin cancer. The collaboration with the equipment manufacturer will ensure the integration of technological innovations in Spedali Civili Hospital.http://www.asst-spedalicivili.it/	
Methods and techniques that will be developed and used to carry out the research	The PhD student will work in a multidisciplinary field based on the cooperation with clinical department and clinical engineering of the hospital, developing in particular new solutions in the field of AI and biomedical technologies.	



	A preliminary phase focused on the analysis of the current methods will be carried out in the first period, after which specific models will be developed to address all aspects, from a technological and computational point of view.
Educational objectives	The PhD student will have the possibility to learn processes and working methods of the hospital sectors, in order to implement new AI tools to apply for departments and medical devices of the hospital. The objective of the programme is to train a professional figure able to successfully integrate in both national and international, public and private research facilities and in companies manufacturing products or service providers, operating in the field of communication, information and perception technologies.
Job opportunities	The PhD student will have the opportunity to learn processes and make experience in the field of AI. So, there is the possibility to create a background related to these areas and specifically to the development of skills related to the buildout of tools associated with services and innovation. The acquired skills will be useful not only in public fields but also in an industrial context.
Composition of the research group	0 Full Professors 1 Associated Professors 1 Assistant Professors 0 PhD Students
Name of the research directors	PROF VERONICA CIMOLIN - PROF GIAN LUCA VIGANO'

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)	2/	

POLITECNICO DI MILANO



Scholarship Increase for a period abroad			
Amount monthly	700.0 €		
By number of months	6		

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

Educational activity: The student will be encouraged to attend to courses at POLIMI or abroad 2 / 3in International Schools.

Teaching assistantship: There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.

Computer and desk availability: the student will be allowed to access facilities of the DEIB. The participation to training events organized for clinical engineering staff, site inspection and access to the company canteen at a reduced cost will be planned.

Teaching activities and participation to national and international conferences will be considered.