

PhD in INGEGNERIA STRUTTURALE, SISMICA, GEOTECNICA / STRUCTURAL SEISMIC AND GEOTECHNICAL ENGINEERING - 40th cycle

THEMATIC Research Field: INTERPRETATION AND CLASSIFICATION OF EXPERIMENTAL SIGNALS BY MEANS OF PHYSICAL DEVICES

Monthly net income of PhDscholarship (max 36 months)		
€ 1600.0		
In case of a change of the welfare rates during the three-year period, the amount could be modified.		

Con	text of the research activity
Motivation and objectives of the research in this field	The research activity will be carried out in the framework of the ERC-advanced Grant research project IMMENSE, with PI Prof. Alberto Corigliano. The overarching aim of the project is to obtain sentient materials and structures able to sense, transmit and classify the sensed signals and learn how to react to the received signals to adapt to the evolving internal and/or external environment. The specific activity of the PhD will focus on the creation of innovative physical devices that are able to interpret and classify experimental signals.
Methods and techniques that will be developed and used to carry out the research	The PhD candidate will make use of innovative approaches for the interpretation and classification of experimental signals like acoustic and/or elastic waves and vibrations by means of physical devices. Physical Reservoir Computing and other recently proposed techniques for edge-computing will be explored and devices will be created for the recognition and classification of signals.
Educational objectives	The research field is highly innovative and multi- disciplinary. The PhD candidate will be part of an ambitious research project and will have the possibility to increase his/her knowledge of materials and structural mechanics, advanced sensors, computational methods



	signal treatment techniques, and machine learning.
Job opportunities	The PhD candidate will collaborate with other research groups of Politecnico di Milano and with various international groups abroad. Contacts with important industries will be also possible throughout the whole project duration.
Composition of the research group	1 Full Professors 2 Associated Professors 2 Assistant Professors 4 PhD Students
Name of the research directors	Alberto Corigliano, Massimiliano Cremonesi

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	800.0 €		
By number of months	6		

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

Educational activities (purchase of study books and material, funding for participation to courses, summer schools, workshops and conferences): financial aid per PhD student per year The Ph.D. course supports the educational activities of its Ph.D. students with additional funding equal to 10% of the scholarship, starting from the first year.

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

Computer availability: Each Ph.D. student has his/her own computer for individual use. Desk availability: Each Ph.D. student has his/her own desk, cabinet and locker.